PROJECT TITLE: Off-station spring wheat variety evaluations in eastern Montana - 2008

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PROJECT PERSONNEL:

County	Producers	CES Agents
Daniels, dryland	Charlie Cahill	Bobbie Roos
McCone, dryland	Victor Wagner	Ken Nelson
Roosevelt, dryland	Mark Swank	Gina Snyder
Valley, dryland	Bill Lauckner	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: The site in Wibaux County was not harvested because of drought damage. The site in Roosevelt County was not harvested because of hail damage. Summaries of yields, test weights, and protein contents across all sites are shown in Tables 1-3. ONeal yielded most across sites (Table 1). Glenn had highest test weight across sites (Table 2). MTHW0471 had highest protein content across sites (Table 3).

Circle, McCone County (dryland): Performance and relative values of yield, test weight and protein of spring wheat varieties at Circle are shown in Tables 4-7. Jedd had greatest economic return.
Nashua, Valley County (dryland): Performances and relative values of yield, test weight and protein of spring wheat varieties at Nashua are shown in Tables 8-11. ONeal had greatest economic return.
Flaxville, Daniels County (dryland): Performance and relative values of yield, test weight and protein of spring wheat varieties at Flaxville are shown in Tables 12-15. ONeal 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 three off-station sites in eastern Montana, 2008.

Variety	Circle, dryland recrop	Nashua, dryland fallow	Flaxville, dryland fallow	dryland average
ONeal	12.2	18.4	15.1	15.3
PF906-408	13.7	16.8	13.3	14.6
MTHW0471*	12.8	16.6	13.4	14.2
Reeder	11.9	16.1	14.4	14.1
Jedd	13.8	15.4	12.2	13.8
Vida	12.6	15.4	13.1	13.7
Outlook	11.4	15.1	14.5	13.6
MT0415	11.0	16.7	12.5	13.4
Granger	9.7	15.4	14.8	13.3
Kelby	11.3	16.0	12.6	13.3
McNeal	7.0	17.7	14.0	12.9
Explorer*	11.6	15.5	9.5	12.2
Corbin	11.7	13.3	11.0	12.0
Choteau	11.9	11.7	11.7	11.8
Briggs	8.9	13.7	11.6	11.4
Glenn	9.6	11.1	12.8	11.1
Volt	5.8	15.4	12.2	11.1
Howard	7.8	11.9	13.3	11.0
Kuntz	7.0	12.1	11.9	10.3
Faller	6.6	10.0	11.0	9.2
site average	10.4	14.3	12.7	12.5
probability	<0.001	<0.001	0.294	
CV (S/Mean)	17.4	17.2	17.5	
CV(SE/Mean)	10.1	9.9	10.1	
LSD 0.05	3.0	4.0	ns	

*hard white wheat

Table 2. Summary of spring wheat test weights in lb/bu at three off-station sites in eastern Montana, 2008.

Variety	Circle, dryland recrop	Nashua, dryland fallow	Flaxville, dryland fallow	dryland average
Glenn	62.0	56.5	63.3	60.6
MTHW0471*	62.0	57.5	61.3	60.3
ONeal	59.5	55.2	63.2	59.3
Volt	59.8	55.0	62.0	58.9
Jedd	60.5	54.7	61.2	58.8
Briggs	60.2	55.0	61.0	58.7
MT0415	60.7	54.8	60.7	58.7
Reeder	59.5	54.1	61.3	58.3
Kelby	59.7	53.8	60.5	58.0
Kuntz	60.0	53.3	60.7	58.0
Corbin	59.8	53.5	60.3	57.9
Granger	58.7	53.0	61.7	57.8
Vida	59.5	53.2	60.5	57.7
McNeal	57.0	54.7	60.7	57.4
Howard	58.8	52.5	61.0	57.4
PF906-408	59.2	52.8	60.0	57.3
Choteau	59.5	53.5	58.8	57.3
Outlook	58.2	53.0	60.5	57.2
Explorer*	59.2	52.8	59.7	57.2
Faller	57.3	51.0	61.0	56.4
site average	59.6	54.1	61.0	58.2
probability	<0.001	<0.001	<0.001	
CV (S/Mean)	1.1	1.6	1.6	
CV(SE/Mean)	0.6	0.9	0.9	
LSD 0.05	1.0	1.4	1.6	

*hard white wheat

Table 3. Summary of spring wheat protein contents in percent at three dryland off-station sites in eastern Montana, 2008.

Variety	Circle, dryland recrop	Nashua, dryland fallow	Flaxville, dryland fallow	dryland average
MTHW0471*	15.72	18.78	15.70	16.73
Explorer*	15.72	18.08	15.52	16.44
Reeder	15.16	17.50	16.38	16.35
Faller	15.86	17.01	16.09	16.32
Vida	14.60	17.41	16.71	16.24
MT0415	14.10	17.44	16.27	15.94
Glenn	14.76	16.99	15.91	15.89
Corbin	14.57	17.61	15.27	15.82
Volt	14.23	17.15	15.80	15.73
ONeal	14.43	17.39	15.28	15.70
Kelby	14.15	17.20	15.22	15.52
Briggs	14.66	17.16	14.70	15.51
Outlook	13.85	16.57	15.80	15.41
McNeal	14.08	16.54	15.10	15.24
Howard	14.58	16.21	14.91	15.23
Granger	14.28	16.63	14.75	15.22
Choteau	14.02	16.05	14.83	14.97
PF906-408	13.23	16.62	14.70	14.85
Jedd	13.15	17.05	13.83	14.68
Kuntz	13.52	16.13	14.28	14.64
site average	14.43	16.97	15.35	15.58
probability	<0.001	<0.001	<0.001	
CV (S/Mean)	4.1	2.6	4.3	
CV(SE/Mean)	2.4	1.5	2.5	
LSD 0.05	1.0	0.73	1.08	

*hard white wheat

Table 4. Performance of spring wheat grown under dryland continuous cropping conditions at Circle, MT. Planted: Apr 19, 2008 Harvested: Aug 8, 2008 Cooperator: Victor Wagner

Variety	height, inches	sawfly damage, %	grain protein, %	test wt, lb/bu	Yield, bu/acre	$/acre[1] +/- McNeal
Jedd	21.3	16.7	13.15	60.5	13.8	30.77
PF906-408	21.7	20.0	13.23	59.2	13.7	30.29
Vida	21.1	25.0	14.60	59.5	12.6	28.50
ONeal	22.6	21.7	14.43	59.5	12.2	26.51
Reeder	22.2	26.7	15.16	59.5	11.9	26.08
Choteau	22.2	11.7	14.02	59.5	11.9	24.06
Corbin	23.1	21.7	14.57	59.8	11.7	24.01
Kelby	21.5	23.3	14.15	59.7	11.3	21.57
MT0415	24.3	30.0	14.10	60.7	11.0	19.64
Outlook	23.3	30.0	13.85	58.2	11.4	19.44
Glenn	24.1	23.3	14.76	62.0	9.6	14.01
Granger	22.4	31.7	14.28	58.7	9.7	13.65
Briggs	22.8	23.3	14.66	60.2	8.9	10.49
Howard	23.1	20.0	14.58	58.8	7.8	4.55
McNeal	23.1	28.3	14.08	57.0	7.0	0.00
Kuntz	22.2	36.7	13.52	60.0	7.0	-0.84
Faller	20.5	33.3	15.86	57.3	6.6	-0.84
Volt	21.4	53.3	14.23	59.8	5.8	-5.66
Explorer*	22.7	18.3	15.72	59.2	11.6	
MTHW0471*	22.8	30.0	15.72	62.0	12.8	
average	22.4	26.3	14.43	59.6	10.4	
probability	0.080	<0.001	<0.001	<0.001	<0.001	
CV (S/Mean)	5.8	28.4	4.1	1.1	17.4	
CV(SE/Mean)	3.4	16.4	2.4	0.6	10.1	
LSD 0.05	2.2	12.3	0.97	1.1	3.0	

[1] Wheat prices summarized by G. Carlson, NARC, Havre, MT, from 10-yr (1998-2007) average daily market values for PNW, supplied by the Montana Wheat and Barley Committee, and compiled by Gregg Carlson, MSU Northern Agricultural Research Center, Havre, MT.

*no price for white wheat

Table 5. Relative yielding abilities of spring wheat varieties as compared to McNeal when grown under dryland conditions in McCone County in cooperation with CES.

Cultivar	2003	2004	2005	2006	2008	Ave	as % of McNeal
Jedd	--	--	--	--	13.8	13.8	197.1
PF906-408	--	--	--	--	13.7	13.7	195.7
MTHW0471	--	--	--	--	12.8	12.8	182.9
ONeal	--	--	--	--	12.2	12.2	174.3
Corbin	--	--	--	--	11.7	11.7	167.1
Explorer	--	--	--	--	11.6	11.6	165.7
Kelby	--	--	--	--	11.3	11.3	161.4
MT0415	--	--	--	--	11.0	11.0	157.1
Granger	--	--	--	--	9.7	9.7	138.6
Howard	--	--	--	11.7	7.8	9.8	136.4
Briggs	--	--	--	--	8.9	8.9	127.1
Reeder	26.1	32.4	36.2	12.9	11.9	23.9	121.0
Vida	--	34.2	29.0	14.4	12.6	22.6	118.8
Outlook	26.6	33.0	35.2	10.9	11.4	23.4	118.5
Glenn	--	--	27.5	10.6	9.6	15.9	106.5
Choteau	23.5	28.7	25.3	10.8	11.9	20.0	101.4
McNeal	22.9	31.1	30.5	7.3	7.0	19.8	100.0
Kuntz	--	--	--	--	7.0	7.0	100.0
Faller	--	--	--	--	6.6	6.6	94.3
Volt	--	--	--	--	5.8	5.8	82.9

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

Cultivar	2003	2004	2005	2006	2008	Ave	as % of McNeal
MTHW0471	--	--	--	--	62.0	62.0	108.8
Glenn	--	--	62.3	60.8	62.0	61.7	107.4
MT0415	--	--	--	--	60.7	60.7	106.5
Jedd	--	--	--	--	60.5	60.5	106.1
Briggs	--	--	--	--	60.2	60.2	105.6
Kuntz	--	--	--	--	60.0	60.0	105.3
Volt	--	--	--	--	59.8	59.8	104.9
Corbin	--	--	--	--	59.8	59.8	104.9
Kelby	--	--	--	--	59.7	59.7	104.7
Reeder	60.3	61.8	61.7	58.3	59.5	60.3	104.5
ONeal	--	--	--	--	59.5	59.5	104.4
PF906-408	--	--	--	--	59.2	59.2	103.9
Explorer	--	--	--	--	59.2	59.2	103.9
Vida	--	61.3	61.3	58.0	59.5	60.0	103.8
Howard	--	--	--	58.0	58.8	58.4	103.6
Choteau	59.6	60.8	60.5	58.8	59.5	59.8	103.6
Granger	--	--	--	--	58.7	58.7	103.0
Outlook	57.7	59.8	59.5	56.7	58.2	58.4	101.1
Faller	--	--	--	--	57.3	57.3	100.5
McNeal	57.3	59.0	59.7	55.7	57.0	57.7	100.0

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

Cultivar	2003	2004	2005	2006	2008	Ave	as % of McNeal
Faller	--	--	--	--	15.9	15.9	112.8
Explorer	--	--	--	--	15.7	15.7	111.3
MTHW0471	--	--	--	--	15.7	15.7	111.3
Reeder	15.7	14.1	13.7	16.0	15.2	14.9	109.7
Glenn	--	--	13.8	15.1	14.8	14.6	108.7
Choteau	15.1	14.2	13.2	14.8	14.0	14.3	104.7
Briggs	--	--	--	--	14.7	14.7	104.3
Vida	--	13.8	11.8	15.0	14.6	13.8	103.8
Corbin	--	--	--	--	14.6	14.6	103.5
ONeal	--	--	--	--	14.4	14.4	102.1
Howard	--	--	--	14.6	14.6	14.6	102.1
Outlook	14.9	12.9	12.4	15.2	13.8	13.8	101.6
Granger	--	--	--	--	14.3	14.3	101.4
Kelby	--	--	--	--	14.2	14.2	100.7
Volt	--	--	--	--	14.2	14.2	100.7
McNeal	14.9	13.0	11.6	14.5	14.1	13.6	100.0
MT0415	--	--	--	--	14.1	14.1	100.0
Kuntz	--	--	--	--	13.5	13.5	95.7
Jedd	--	--	--	--	13.2	13.2	93.6
PF906-408	--	--	--	--	13.2	13.2	93.6

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 8. Performance of spring wheat grown under dryland conditions at Nashua, MT.
Planted: Apr 12, 2008 Harvested: Aug 19, 2008 Cooperator: Bill Lauckner

Variety	height, inches	Grain protein	Test weight	Yield, bu/acre	$/acre[1] +/- McNeal
ONeal	27.7	17.39	55.2	18.4	3.55
McNeal	26.8	16.54	54.7	17.7	0.00
PF906-408	25.2	16.62	52.8	16.8	-4.58
MT0415	28.7	17.44	54.8	16.7	-5.08
Reeder	27.0	17.50	54.1	16.1	-8.13
Kelby	25.5	17.20	53.8	16.0	-8.64
Granger	29.3	16.63	53.0	15.4	-11.69
Vida	25.7	17.41	53.2	15.4	-11.69
Volt	26.3	17.15	55.0	15.4	-11.69
Jedd	24.7	17.05	54.7	15.4	-11.69
Outlook	26.1	16.57	53.0	15.1	-13.21
Briggs	28.7	17.16	55.0	13.7	-20.32
Corbin	26.9	17.61	53.5	13.3	-22.36
Tioga	29.9	17.52	55.0	13.0	-23.88
Kuntz	26.0	16.13	53.3	12.1	-28.45
Howard	28.4	16.21	52.5	11.9	-29.47
Choteau	25.6	16.05	53.5	11.7	-30.48
Glenn	30.6	16.99	56.5	11.1	-33.53
Faller	25.7	17.01	51.0	10.0	-39.12
MTHW0471*	28.5	18.78	57.5	16.6	
Explorer*	26.9	18.08	52.8	15.5	
Triticacle	31.1	16.95	53.3	10.4	
Kamut	32.7	14.28	57.0	10.2	
average	31.1	16.95	53.3	10.4	
probability	32.7	14.28	57.0	10.2	
CV (S/Mean)	25.7	17.01	51.0	10.0	
CV(SE/Mean)	27.6	16.97	54.1	14.3	
LSD 0.05	<0.001	<0.001	<0.001	<0.001	

[1] Wheat prices summarized by G. Carlson, NARC, Havre, MT, from 10-yr (1998-2007) average daily market values for PNW, supplied by the Montana Wheat and Barley Committee, and compiled by Gregg Carlson, MSU Northern Agricultural Research Center, Havre, MT.

*no price for white wheat

Table 9. Relative yielding abilities of spring wheat varieties as compared to McNeal when grown under dryland conditions in Valley County in cooperation with CES.

Cultivar	2003	2004	2005	2006	2008	Ave	as % of McNeal
Outlook	42.7	61.7	58.0	32.6	15.1	42.0	111.6
Vida	--	63.2	48.6	37.2	15.4	41.1	110.4
Reeder	39.7	59.2	50.4	33.3	16.1	39.7	105.5
Glenn	--	--	57.7	29.9	11.1	32.9	104.3
ONeal	--	--	--	--	18.4	18.4	104.0
McNeal	39.4	54.3	49.0	27.9	17.7	37.7	100.0
Howard	--	--	--	32.3	11.9	22.1	96.9
PF906-408	--	--	--	--	16.8	16.8	94.9
MT0415	--	--	--	--	16.7	16.7	94.4
MTHW0471*	--	--	--	--	16.6	16.6	93.8
Choteau	33.6	48.1	47.7	30.2	11.7	34.3	91.0
Kelby	--	--	--	--	16.0	16.0	90.4
Explorer*	--	--	--	--	15.5	15.5	87.6
Granger	--	--	--	--	15.4	15.4	87.0
Volt	--	--	--	--	15.4	15.4	87.0
Jedd	--	--	--	--	15.4	15.4	87.0
Tioga	--	--	--	26.6	13.0	19.8	86.8
Briggs	--	--	--	--	13.7	13.7	77.4
Corbin	--	--	--	--	13.3	13.3	75.1
Kuntz	--	--	--	--	12.1	12.1	68.4
Faller	--	--	--	--	10.0	10.0	56.5

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

Cultivar	2003	2004	2005	2006	2008	Ave	as % of McNeal
Glenn	--	--	63.7	62.7	56.5	61.0	106.2
MTHW0471*	--	--	--	--	57.5	57.5	105.1
Tioga	--	--	--	60.0	55.0	57.5	103.4
Choteau	59.0	61.3	60.7	60.0	53.5	58.9	101.4
Reeder	58.2	62.2	61.5	58.3	54.1	58.9	101.3
Howard	--	--	--	59.8	52.5	56.2	101.0
ONeal	--	--	--	--	55.2	55.2	100.9
Volt	--	--	--	--	55.0	55.0	100.5
Briggs	--	--	--	--	55.0	55.0	100.5
MT0415	--	--	--	--	54.8	54.8	100.2
McNeal	57.2	61.0	61.0	56.5	54.7	58.1	100.0
Vida	--	60.3	60.7	59.0	53.2	58.3	100.0
Jedd	--	--	--	--	54.7	54.7	100.0
Outlook	57.2	59.7	60.5	57.7	53.0	57.6	99.2
Kelby	--	--	--	--	53.8	53.8	98.4
Corbin	--	--	--	--	53.5	53.5	97.8
Kuntz	--	--	--	--	53.3	53.3	97.4
Granger	--	--	--	--	53.0	53.0	96.9
PF906-408	--	--	--	--	52.8	52.8	96.5
Explorer*	--	--	--	--	52.8	52.8	96.5
Faller	--	--	--	--	51.0	51.0	93.2

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

Cultivar	2003	2004	2005	2006	2008	Ave	as % of McNeal
MTHW0471*	--	--	--	--	18.8	18.8	113.9
Vida	--	15.6	12.4	13.8	17.4	14.8	111.7
Reeder	18.0	13.4	12.0	14.8	17.5	15.1	110.7
Explorer*	--	--	--	--	18.1	18.1	109.7
Corbin	--	--	--	--	17.6	17.6	106.7
Glenn	--	--	14.5	12.6	17.0	14.7	106.5
ONeal	--	--	--	--	17.4	17.4	105.5
MT0415	--	--	--	--	17.4	17.4	105.5
Kelby	--	--	--	--	17.2	17.2	104.2
Volt	--	--	--	--	17.2	17.2	104.2
Briggs	--	--	--	--	17.2	17.2	104.2
Jedd	--	--	--	--	17.0	17.0	103.0
Faller	--	--	--	--	17.0	17.0	103.0
Choteau	15.7	13.2	12.0	13.1	16.0	14.0	102.3
Tioga	--	--	--	12.4	17.5	15.0	102.0
PF906-408	--	--	--	--	16.6	16.6	100.6
Granger	--	--	--	--	16.6	16.6	100.6
McNeal	15.4	11.6	12.1	12.8	16.5	13.7	100.0
Outlook	15.5	12.8	11.3	12.2	16.6	13.7	100.0
Kuntz	--	--	--	--	16.1	16.1	97.6
Howard	--	--	--	12.2	16.2	14.2	96.9

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 12. Performance of spring wheat grown under dryland conditions at Flaxville, MT.
Planted: May 6, 2008 Harvested: August 25, 2008 Cooperator: Charlie Cahill

Variety	Height, inches	Grain protein	Test Weight	Yield Bu/acre	$/acre[1] +/- McNeal
ONeal	18.8	15.28	63.2	15.1	5.59
Granger	17.6	14.75	61.7	14.8	3.47
Outlook	18.6	15.80	60.5	14.5	2.54
Reeder	16.1	16.38	61.3	14.4	2.03
McNeal	18.5	15.10	60.7	14.0	0.00
Howard	19.5	14.91	61.0	13.3	-3.56
PF906-408	14.7	14.70	60.0	13.3	-4.09
Vida	16.6	16.71	60.5	13.1	-4.57
Glenn	18.9	15.91	63.3	12.8	-6.10
Kelby	19.0	15.22	60.5	12.6	-7.11
MT0415	16.8	16.27	60.7	12.5	-7.62
Volt	16.0	15.80	62.0	12.2	-9.14
Jedd	17.7	13.83	61.2	12.2	-11.95
Choteau	16.5	14.83	58.8	11.7	-12.15
Kuntz	18.2	14.28	60.7	11.9	-12.22
Briggs	18.8	14.70	61.0	11.6	-12.66
Faller	16.8	16.09	61.0	11.0	-15.24
Corbin	17.6	15.27	60.3	11.0	-15.24
MTHW0471*	20.2	15.70	61.3	13.4	
Explorer*	19.4	15.52	59.7	9.5	
average	17.8	15.35	61.0	12.7	
probability	<0.001	<0.001	<0.001	0.294	
CV (S/Mean)	7.2	4.3	1.6	17.5	
CV(SE/Mean)	4.1	2.5	0.9	10.1	
LSD 0.05	2.11	1.08	1.6	ns	

[1] Wheat prices summarized by G. Carlson, NARC, Havre, MT, from 10-yr (1998-2007) average daily market values for PNW, supplied by the Montana Wheat and Barley Committee, and compiled by Gregg Carlson, MSU Northern Agricultural Research Center, Havre, MT.

*no price for white wheat

Table 13. Relative yields of spring wheat varieties as compared to McNeal when grown under dryland conditions in Daniels County in cooperation with CES.

Variety	2003	2004	2005	2006	2008	average	As % of McNeal
ONeal	--	--	--	--	15.1	15.1	107.9
Granger	--	--	--	--	14.8	14.8	105.7
Howard	--	--	--	40.3	13.3	26.8	102.7
Outlook	37.7	42.3	17.2	37.0	14.5	29.7	100.9
McNeal	31.6	47.4	16.2	38.2	14.0	29.5	100.0
Vida	--	41.7	16.6	42.4	13.1	28.5	98.3
Reeder	35.4	35.9	15.2	42.3	14.4	28.6	97.2
Glenn	--	--	13.7	39.5	12.8	22.0	96.5
MTHW0471	--	--	--	--	13.4	13.4	95.7
PF906-408	--	--	--	--	13.3	13.3	95.0
Kelby	--	--	--	--	12.6	12.6	90.0
MT0415	--	--	--	--	12.5	12.5	89.3
Choteau	28.2	39.6	12.4	37.9	11.7	26.0	88.1
Jedd	--	--	--	--	12.2	12.2	87.1
Volt	--	--	--	--	12.2	12.2	87.1
Kuntz	--	--	--	--	11.9	11.9	85.0
Briggs	--	--	--	--	11.6	11.6	82.9
Faller	--	--	--	--	11.0	11.0	78.6
Corbin	--	--	--	--	11.0	11.0	78.6
Explorer	--	--	--	--	9.5	9.5	67.9

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

Variety	2003	2004	2005	2006	2008	average	As % of McNeal
Glenn	--	--	65.5	63.2	63.3	64.0	105.5
ONeal	--	--	--	--	63.2	63.2	104.1
Volt	--	--	--	--	62.0	62.0	102.1
Reeder	63.0	62.3	63.2	61.3	61.3	62.2	102.0
Granger	--	--	--	--	61.7	61.7	101.6
MTHW0471	--	--	--	--	61.3	61.3	101.0
Jedd	--	--	--	--	61.2	61.2	100.8
Vida	--	61.7	63.0	59.8	60.5	61.3	100.6
Briggs	--	--	--	--	61.0	61.0	100.5
Faller	--	--	--	--	61.0	61.0	100.5
Choteau	62.3	61.7	62.7	60.8	58.8	61.3	100.4
Howard	--	--	--	59.5	61.0	60.3	100.4
McNeal	61.5	61.5	62.0	59.3	60.7	61.0	100.0
MT0415	--	--	--	--	60.7	60.7	100.0
Kuntz	--	--	--	--	60.7	60.7	100.0
Kelby	--	--	--	--	60.5	60.5	99.7
Corbin	--	--	--	--	60.3	60.3	99.3
Outlook	61.3	60.5	62.2	58.3	60.5	60.6	99.3
PF906-408	--	--	--	--	60.0	60.0	98.8
Explorer	--	--	--	--	59.7	59.7	98.4

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

Variety	2003	2004	2005	2006	2008	average	As % of McNeal
Vida	--	11.5	12.1	14.1	16.7	13.6	112.6
Reeder	14.7	13.4	11.6	12.8	16.4	13.8	111.3
Glenn	--	--	11.6	13.4	15.9	13.6	110.2
MT0415	--	--	--	--	16.3	16.3	107.9
Faller	--	--	--	--	16.1	16.1	106.6
Volt	--	--	--	--	15.8	15.8	104.6
Outlook	13.1	12.0	10.9	12.9	15.8	12.9	104.5
MTHW0471	--	--	--	--	15.7	15.7	104.0
Choteau	13.9	11.2	11.3	12.8	14.8	12.8	103.4
Explorer	--	--	--	--	15.5	15.5	102.6
Howard	--	--	--	12.6	14.9	13.8	101.5
ONeal	--	--	--	--	15.3	15.3	101.3
Corbin	--	--	--	--	15.3	15.3	101.3
Kelby	--	--	--	--	15.2	15.2	100.7
McNeal	13.6	11.2	10.0	12.0	15.1	12.4	100.0
Granger	--	--	--	--	14.8	14.8	98.0
PF906-408	--	--	--	--	14.7	14.7	97.4
Briggs	--	--	--	--	14.7	14.7	97.4
Kuntz	--	--	--	--	14.3	14.3	94.7
Jedd	--	--	--	--	13.8	13.8	91.4

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.