

## RESULTS OF AGRONOMIC AND WEED SCIENCE RESEARCH CONDUCTED IN SOUTH CENTRAL MONTANA - 2008

The Annual Report of the Investigations at and Administration of the  
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- PROJECT TITLE:** Off-Station Spring Wheat Variety Performance Trials in South Central Montana. This research is partially supported by the Montana Wheat and Barley Committee.
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- OBJECTIVES:** To provide growers in south central Montana with a reliable, unbiased, up-to-date source of information that will permit valid comparisons among improved spring wheat varieties. This information should help spring wheat producers in south central Montana select varieties best suited to their particular area and growing conditions.
- METHODS:** The 2008 off-station spring wheat trials in south central Montana were established under dryland conditions near Molt, Broadview and Huntley, and under irrigated conditions near Fromberg, Huntley and Hysham, Montana (Figure 1). The spring wheat trials for this region of Montana each possessed 25 entries made up of 22 commercial cultivars and three experimental lines. Information pertaining to the traits and characteristics of the 25 spring wheat entries are provided in Table 2.

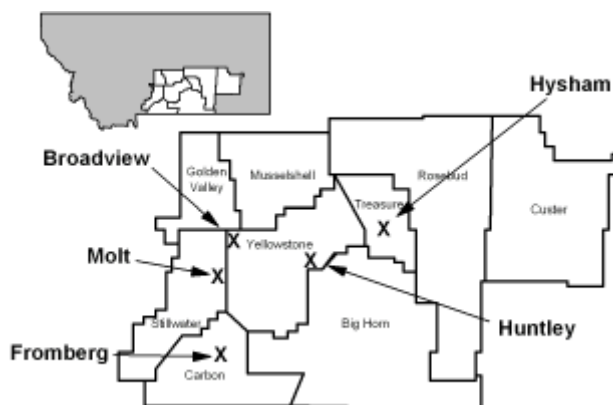


Figure 1. 2008 off-station spring wheat trial locations in south central Montana.

All studies were planted using a partially-balanced lattice design with three replications. All entries were seeded at approximately 0.75 million seeds per

acre under dryland conditions (~45 lb/a) and 1.5 million seeds per acre under irrigation (~90 lb/a). Actual seeding rates were calculated from the thousand kernel weight determined for the seed lot of each cultivar (Table 1), and varied from 40 to 68 pounds per acre for the dryland sites and from 80 to 135 pounds per acre under irrigation. Seeding rates were not adjusted for germination. Dryland test plots consisted of a 15-foot, 4-row plot with 14-inch row spacing. Irrigated test plots consisted of a 15-foot, 7-row plot with 7-inch row spacing. All rows of each test plot were trimmed 36 inches and harvested using an experimental plot combine. Recorded grain yields were adjusted to 13% grain moisture content, and are reported in bushels per acre (bu/a) based on a 60 pound standard bushel weight. Test weight (lb/bu, pounds per bushel) and grain moisture content (% , percent) were obtained for each plot using a Dickey-john™ GAC 2100 grain analyzer. Grain protein (% , percent) was estimated using near infrared spectroscopy. Reported grain protein values are adjusted to a 12% grain moisture content. Plant height was measured in inches from the soil surface to the top of the head, excluding the awns if present. Lodging severity was recorded on a 0 to 9 scale at Fromberg and Hysham, representing no lodging to all stems lying flat on the ground, respectively.

Table 1. Adjusted seeding rates used to establish 25 spring wheat cultivars tested at five off-station sites in south central Montana during 2008.

1/ Cultivar	Thousand Kernel Weight grams	Seeds per Pound #	2/ Dryland Seeding Rate		3/ Irrigated Seeding Rate	
			per plot grams	per acre pounds	per plot grams	per acre pounds
<u>Commercial</u>						
AC Lillian	31.9	14,247	32.9	53	65.8	105
Choteau	28.6	15,881	29.5	47	59.1	94
Conan	29.1	15,609	30.0	48	60.1	96
Corbin	32.1	14,165	33.1	53	66.2	106
Explorer	30.5	14,900	31.5	50	63.0	101
Fortuna	34.3	13,239	35.4	57	70.9	113
Freyr	28.9	15,717	29.8	48	59.7	95
Granger	39.8	11,404	41.1	66	82.2	132
Hank	35.1	12,948	36.2	58	72.4	116
Jedd	34.0	13,366	35.1	56	70.2	112
Jerome	40.9	11,096	42.3	68	84.5	135
Kelby	33.9	13,402	35.0	56	70.0	112
Kuntz	29.0	15,636	30.0	48	60.0	96
McNeal	28.1	16,135	29.1	46	58.1	93
Norpro	27.4	16,580	28.3	45	56.6	90
Oneal	30.0	15,136	31.0	50	62.0	99
Outlook	27.9	16,299	28.8	46	57.6	92
Reeder	30.3	14,982	31.3	50	62.6	100
Superb	27.7	16,408	28.6	46	57.2	91
Traverse	35.3	12,857	36.5	58	73.0	117
Vida	30.3	14,982	31.3	50	62.6	100
Volt	29.4	15,463	30.3	48	60.7	97
<u>Experimental</u>						
MT0415	32.2	14,101	33.3	53	66.5	106
MTHW047	24.2	18,723	25.0	40	50.1	80
PF 906-408	36.6	12,412	37.8	60	75.6	121

1/ All seed lots treated with 1.0 fl oz of Dividend XL/cwt, and 1.5 fl oz of Gaucho 600/cwt.

2/ Equivalent to 0.75 million seeds per acre on a mass basis.

3/ Equivalent to 1.5 million seeds per acre on a mass basis.

## **RESULTS:**

The 2008 spring wheat test sites were dry over-winter, with very little rain or snow accumulating during November, December and January. Soil temperatures were cool during the planting period in March, emergence and

subsequent crop development was delayed during most of the spring growth period. Spring wheat stands appeared fairly uniform at all sites before the middle of May. Spring rains produced average to below average precipitation levels until the last week of May. Cooler than normal temperatures that delayed crop development appeared to help avoid drought-related stresses in the crop.

Above normal precipitation occurred during a period from the last week of May through early June, resulting in 4 to 6 inches of rainfall at most test sites. Moderate temperatures occurred during mid June and continued through July delaying maturation of the crop. Fusarium head blight (*aka*, Scab) was not evident in any of the trials. Occurrence of stripe rust (*Puccinia striiformis*) was rare, but could easily be found on the most susceptible cultivars at the irrigated locations. Overall, irrigated off-station spring wheat yields were above average in 2008, with heavy test weight values and average to above average grain protein content comparable to studies conducted at these sites the previous year. Post-heading moisture stress dampened the performance of spring cultivars tested under dryland conditions near Molt.

The average dryland spring wheat yield near Huntley in 2008 was 63 bu/a (Table 3). Yields ranged from 52 bu/a for 'Kelby' to 69 bu/a for 'Hank'. Ten commercial spring wheat cultivars including 'Freyr', 'Granger', 'Jedd', 'Jerome', 'Norpro', 'Oneal', 'Outlook', 'Reeder', 'Vida', 'Volt' and two experimental lines, 'MT0415' and 'PF906-408', produced yields from 64 to 69 bu/a statistically equal to the yield of Hank at this location. Average test weight was 61.5 lb/bu, with all 25 entries having test weights heavier than 58 lb/bu. Grain protein levels averaged 11.4 percent and varied from 10.3 percent for Jedd to 13.2 percent for 'AC Lillian'.

Dryland spring wheat yields at Broadview averaged 19 bu/a, and varied from 12 bu/a for 'Kuntz' to 24 bu/a for 'Corbin' (Table 4). 'AC Lillian', 'Choteau', 'Conan', 'Fortuna', Jedd, Outlook, Vida and the experimental line 'PF906-408' produced yields from 22 to 23 bu/a, equal to the yield of Corbin spring wheat. Test weights were light at the Broadview location in 2008, averaging 57.7 lb/bu. Only eight commercial cultivars of the 25 entries (Choteau, Conan, Fortuna, Freyr, Jedd, Kelby, Oneal and Volt) possessed test weights greater than 58 lb/bu. Grain protein levels averaged 13.6 percent, the highest protein level observed among dryland sites in 2008. Grain protein varied from 12.5 percent for Jerome to 15.2 percent for AC Lillian. While no stem cutting was observed at Broadview, many of the better yielding entries tested at this location appear to possess some form of resistance to the wheat stem sawfly (*Cephus cinctus* Norton).

Molt spring wheat yields averaged 16 bu/a in 2008 (Table 5), which was 4 more bu/a than the average spring wheat yields experienced at this site in 2007. Yields were less variable in 2008, ranging from 13 bu/a for Kelby to 19 bu/a for Oneal. Average test weight at Molt in 2008 was 60.2 lb/bu, with all cultivars exceeding 58 lb/bu. Test weight varied from 58.5 for AC Lillian to 62.7 for Volt spring wheat. Grain protein levels averaged 12.4 percent or 1 percent higher than protein levels measured for spring wheat entries grown at this location in 2007. Grain protein levels varied from 10.7 percent for 'Traverse' to 13.7 percent for Kelby. Two-year average yield for spring wheat varieties tested during 2007 and 2008 at Molt averaged 14 bu/a. Three-year average yield for spring wheat varieties tested during 2006, 2007 and 2008 in Molt also averaged 14 bu/a. No statistical differences in grain yield were detected between spring wheat cultivars tested at Molt for the past year, past two years or past three years.

Irrigated spring wheat yields at Huntley averaged 100 bu/a, and varied from 84 bu/a for 'McNeal' to 131 bu/a for Jerome (Table 6). Choteau and Jedd spring wheat yielded 111 and 120 bu/a, respectively, statistically equal to the yield of Jerome spring wheat. Average test weight was 63.4 lb/bu, with all of the spring wheat entries having test weights greater than 58 lb/bu. Grain protein levels only averaged 9.7 percent and varied from 8.3 percent for experimental line PF906-

408 to 11.5 percent for the experimental line 'MT0415' and the commercial cultivar AC Lillian. Minor lodging was observed among the taller entries tested, which did not appear to deleteriously affect the overall performance of those cultivars. No statistical differences in grain yield were detected between spring wheat cultivars tested at Molt for the past two years.

Average yields at Hysham were 103 bu/a under irrigated conditions in 2008 (Table 7). The highest yielding spring wheat cultivar tested at Hysham was Jerome, averaging 128 bu/a. Three commercial entries (Choteau, Oneal and Volt) had yields from 120 to 128 bu/a, which were equal to the highest yielding entry. Average test weight was 60.1 lb/bu, with most of the hard red spring wheat entries having test weights greater than 58 lb/bu. Grain protein levels averaged 14.1 percent and varied from 12.4 percent for Jerome to 18.1 percent for AC Lillian. Significant lodging was observed among most of the entries tested at Hysham in 2008, but the commercial cultivars Jerome and Kelby exhibited no signs of lodging under these conditions.

The average spring wheat yield at Fromberg in 2008 was 95 bu/a (Table 8). Yields ranged from 78 bu/a for AC Lillian to 109 bu/a for Volt. Eight entries (Hank, Jerome, Kelby, Norpro, Outlook, Traverse, Vida and PF906-408) produced yields from 98 to 106 bu/a, equal to the yield of Volt. Average test weight was 61.4 lb/bu, with all 25 entries having test weights greater than 58 lb/bu. Grain protein levels averaged 12.9 percent and varied from 11.6 percent for Outlook to 14.7 percent for AC Lillian. Less lodging was observed among the entries at Fromberg compared to the irrigated site at Hysham in 2008, with only Fortuna and Granger exhibiting any degree of lodging compared to the remaining 22 entries. Yield differences have been evident at Fromberg for spring wheat entries tested the past two and three years. Two year average yield for spring wheat varieties tested during 2007 and 2008 averaged 99 bu/a, with the cultivar Outlook producing the highest two year of nearly 107 bu/a. Three-year average yield for spring wheat cultivars tested during 2006 to 2008 was 101 bu/a. Vida has been the highest yielding spring wheat tested at Fromberg the past three years, averaging 109 bu/a.

## **SUMMARY:**

Jerome hard red spring wheat was the highest yielding entry across all locations tested in south central Montana during 2006-2008 (Tables 9 and 10), averaging 75, 74 and 76 bu/a for the past year, past two years and past three years, respectively, under both dryland and irrigated conditions. Jerome also was the highest yielding entry tested only under irrigation (Tables 9 and 11), averaging 119 bu/a in 2008, 112 bu/a for 2007-2008 and 113 bu/a for 2006-2008. Across all locations for the past three years, Choteau, Freyr, Hank and Vida have produced yields of 72 to 74 bu/a, which is statistically equal to the yield of Jerome during the same period of testing (Table 10). Under irrigation, only Choteau and Hank have produced yields equal to those of Jerome under irrigated conditions (Table 11). Hard red spring wheat cultivars that show promise of superior yield performance after only one year of testing in south central Montana include Jedd, Oneal, Volt and possibly Superb. AC Lillian consistently possessed the highest grain protein level among entries tested in 2008 (Table 10), but at the cost of a substantial yield penalty compared to better adapted cultivars.

Identifying spring wheat cultivars adapted across a wide range of dryland environments remains difficult. Large genotype by environment interactions indicate a cultivar or group of cultivars that perform well at one site seldom perform well at another. In 2008, top yielding entries under dryland conditions at Huntley, where dryland yields were highest, were generally the same that perform well under irrigated conditions. At Broadview, spring wheat cultivars possessing solid stem or non-preference resistance to the wheat stem sawfly appeared to perform better than conventional cultivars. Although no stem cutting was observed at harvest, the Broadview trial must have experienced some level of sawfly infestation during 2008. Spring wheat yields at Molt continued to be

limited by shallow soils and irregular precipitation patterns. Detecting any difference in spring wheat entries at this site remains a challenge.

**FUTURE PLANS:**

Off-station spring wheat variety performance trials will continue in 2009 at the Broadview, Molt, Huntley, Hysham and Fromberg locations. The authors of this article wish to thank the farmer-cooperators involved who provided land and other resources for these trials, and the Montana Wheat and Barley Committee for continued financial support of this research project.

Table 2. Selected characteristics and traits of 25 spring wheat cultivars performance tested at six off-station sites in south central Montana during 2008.

Cultivar	1/ Origin	Year of Release	2/ Market Class	3/ PVP	4/ Maturity	5/ Straw Strength	6/ Disease Resistance					6/ Insect Resistance			7/ Quality		8/ Clearfield Type		
							Fusarium		Leaf Rust	Stem Rust	Stripe Rust	Wheat Stem Sawfly	Russian Wheat Aphid	Hessian Fly (GP)	Quality				
							Head Blight (Scab)	Straw Blight							Milling	Baking			
				Yes/No													1-5	1-5	Yes/No
<u>Commercial Entries</u>																			
AC Lillian	AAFC	2006	HRS	-	M	MS	S	R	MR	-	R	S	-	-	-	N			
Choteau	MSU	2003	HRS	Y	E-M	VS	S	-	R	S	R	S	S	4	4	N			
Conan	WestBred	1997	HRS	Y	E	S	S	R	-	R	MS	S	S	3	3	N			
Corbin	WestBred	2006	HRS	Y	E	MS	S	-	-	R	R	S	-	3	3	N			
Explorer	MSU	2002	HW	Y	E	S	S	MR	R	MR	S	S	S	4	5	N			
Fortuna	NDSU	1966	HRS	N	E	MW	S	R	R	VS	R	S	S	5	4	N			
Freyr	AgriPro	2004	HRS	Y	M	M	MR	MR	MR	MR	S	S	S	3	3	N			
Granger	SDSU	2004	HRS	Y	M	M	MS	MR	R	R	S	S	-	3	3	N			
Hank	WestBred	1999	HRS	Y	E	S	S	R	R	MR	S	S	R	3	4	N			
Jedd	WestBred	2008	HRS	Y	E-M	S	S	-	-	MS	S	S	R	3	3	Y			
Jerome	UI	2004	HRS	Y	M	S	S	-	-	R	S	S	R	4	5	N			
Kelby	AgriPro	2006	HRS	Y	M	MS	MR	MR	R	-	S	S	-	3	3	N			
Kuntz	AgriPro	2007	HRS	Y	M	S	MR	MR	R	-	S	S	-	3	4	N			
McNeal	MSU	1995	HRS	N	M	S	S	MS	MR	VS	S	S	S	3	5	N			
Norpro	AgriPro	1999	HRS	Y	M	S	MS	MR	R	VS	S	S	S	3	3	N			
Oneal	WestBred	2008	HRS	Y	M	S	S	-	-	S	MS	S	-	3	3	N			
Outlook	MSU	2003	HRS	Y	M-L	S	S	MR	R	S	S	R	S	3	3	N			
Reeder	NDSU	1999	HRS	Y	M-L	S	MS	MR	R	MR	S	S	S	3	3	N			
Superb	AAFC	2001	HRS	-	M-L	S	S	MS	R	-	S	S	-	-	-	N			
Traverse	SDSU	2006	HRS	Y	E-M	M	MR	MR	R	MR	S	S	-	1	1	N			
Vida	MSU	2006	HRS	Y	M-L	S	S	-	MS	MR	MS	S	S	4	4	N			
Volt	WestBred	2008	HRS	Y	M	S	MR	-	-	R	S	S	-	3	3	N			
<u>Experimental Entries</u>																			
MT0415	MSU	-	HRS	-	M	M	S	-	R	MS	S	S	S	3	3	N			
MTHW047	MSU	-	HW	-	M-L	M	S	-	R	MR	S	S	S	3	3	N			
PF 906-408	MSU	-	HRS	-	M-L	M	S	-	R	MR	MR	S	S	3	2	N			

1/ AAFC=Agriculture & Agri-Food Canada; AgriPro=AgriPro Seeds Inc. Berthoud, Colorado; MSU=Montana State University; NDSU=North Dakota State University; SDSU=South Dakota State University; UI=University of Idaho; WestBred=WestBred LLC, Bozeman, Montana.

2/ HRS=hard red spring wheat market class; HW=hard white wheat market class.

3/ Indicates a cultivar is protected under the Federal Plant Variety Protection Act of 1970 and amended in 1995.

4/ E=early maturity, M=medium maturity, L=late maturity.

5/ S=strong straw strength, MS=moderately strong straw strength, M=medium straw strength, MW=moderately weak straw strength, W=weak straw strength.

6/ R=resistant, MR=moderately resistant, MS=moderately susceptible, S=susceptible, VS=very susceptible.

7/ Milling and baking quality rated from 1 to 5 where 1=poor and 5=superior quality, respectively.

8/ Signifies a cultivar possessing the Clearfield trait imparting tolerance to Beyond® (imazamox) herbicide.

Table 3. Performance of 25 spring wheat cultivars and experimental lines tested under no-till, dryland conditions near Huntley, Montana during 2008. Cultivars listed alphabetically. (Exp. 089908).

Cultivar	1/ Grain Yield	Test Weight	Grain Moisture	2/ Grain Protein	Plant Height	Heading Date	
	bu/a	lb/bu	%	%	inches	Julian	Calendar
<u>Commercial</u>							
AC Lillian	57.2	60.3	9.2	13.2	37.3	177.2	Jun 25
Choteau	61.3	61.1	9.3	11.9	32.4	174.5	Jun 22
Conan	59.5	61.4	9.3	12.8	32.1	173.1	Jun 21
Corbin	61.1	62.2	9.4	10.7	32.5	173.9	Jun 21
Explorer	55.9	61.0	9.3	11.7	32.1	171.5	Jun 19
Fortuna	58.1	61.9	9.4	11.5	40.1	174.8	Jun 22
Freyr	<b>65.9*</b>	63.1	9.6	10.9	36.7	174.6	Jun 22
Granger	<b>63.9*</b>	61.9	9.5	10.9	37.1	172.4	Jun 20
Hank	<b>69.5**</b>	60.0	9.4	10.8	32.2	173.5	Jun 21
Jedd	<b>68.2*</b>	62.7	9.5	10.3	31.1	173.3	Jun 21
Jerome	<b>67.1*</b>	60.4	9.2	10.9	34.4	171.7	Jun 19
Kelby	52.8	62.7	9.0	12.6	32.6	172.2	Jun 20
Kuntz	59.3	61.0	9.4	11.2	33.6	174.5	Jun 22
McNeal	60.3	60.7	9.3	11.2	34.0	176.0	Jun 24
Norpro	<b>64.1*</b>	60.9	9.4	11.1	34.1	174.9	Jun 22
Oneal	<b>69.1*</b>	61.4	9.8	11.1	36.7	175.4	Jun 23
Outlook	<b>65.9*</b>	61.1	9.3	10.4	36.6	176.6	Jun 24
Reeder	<b>64.6*</b>	62.9	9.6	11.5	36.4	174.1	Jun 22
Superb	62.6	61.0	9.3	12.4	37.1	175.8	Jun 23
Traverse	60.7	59.9	9.1	11.2	35.4	172.9	Jun 20
Vida	<b>68.1*</b>	61.9	9.7	10.9	33.2	173.9	Jun 21
Volt	<b>64.3*</b>	63.6	9.7	10.4	31.4	173.9	Jun 21
<u>Experimental</u>							
MT0415	<b>68.1*</b>	62.1	9.3	12.9	35.3	174.5	Jun 22
MTHW047	61.4	62.9	9.8	11.4	36.6	177.0	Jun 25
PF906-408	<b>68.5*</b>	59.7	9.1	11.2	31.3	174.0	Jun 22
Average	63.1	61.5	9.4	11.4	34.5	174.3	Jun 22
PLSD (p=0.05)	6.5	1.6	0.3	1.3	ns	1.0	
CV%	6.2	1.5	2.2	6.7	11.0	0.3	

1/ Yields are based on 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.

2/ Grain protein values adjusted to 12 percent grain moisture content.

\*\* Indicates highest yielding cultivar within a column.

\* Indicates cultivars yielding equal to highest yielding cultivar within a column based on Fisher's protected LSD (p=0.05).

ns Indicates no significant difference between cultivars within a column based on Fisher's protected LSD (p=0.05).

#### Huntley Dryland Spring Wheat (Exp. 089908)

Planted:	March 14, 2008
Harvested:	August 15, 2008
Fertility:	50-20-10, 100 lb/a, preplant, November 14, 2007
Herbicide:	Curtail, 32 oz/a + Harmony Extra, 0.5 oz/a + R-11, 6 oz/a + AMS, 2 lb/a, May 16, 2008
Insecticide:	none applied
Previous Crop:	summer fallow
Precipitation:	7.56 inches

Table 4. Performance of 25 spring wheat cultivars and experimental lines tested under no-till, dryland conditions near Broadview, Montana during 2008. Cultivars listed alphabetically. (Exp. 089995).

Cultivar	1/	Test Weight	Grain Moisture	2/	Plant Height
	Grain Yield			Grain Protein	
	bu/a	lb/bu	%	%	inches
<u>Commercial</u>					
AC Lillian	<b>22.7*</b>	56.4	7.7	15.2	27.1
Choteau	<b>22.1*</b>	58.0	7.9	13.8	20.6
Conan	<b>23.1*</b>	59.3	8.2	13.2	23.2
Corbin	<b>24.9**</b>	57.8	8.0	13.9	23.3
Explorer	20.4	57.5	7.9	13.8	24.0
Fortuna	<b>22.8*</b>	58.0	8.1	13.9	27.8
Freyr	17.9	58.1	8.0	13.9	25.6
Granger	16.8	57.6	7.8	14.1	25.1
Hank	18.5	56.2	8.0	13.5	21.3
Jedd	<b>22.4*</b>	58.7	8.3	13.1	23.7
Jerome	14.4	56.9	8.0	12.5	23.4
Kelby	16.3	59.6	8.1	14.3	22.3
Kuntz	12.0	57.7	8.0	12.9	23.3
McNeal	18.4	56.8	7.9	13.7	23.2
Norpro	16.4	57.6	7.9	13.5	22.9
Oneal	19.7	59.5	8.4	12.5	23.6
Outlook	<b>22.1*</b>	56.7	7.6	13.4	25.0
Reeder	20.7	57.0	7.7	14.9	23.0
Superb	14.7	57.5	7.9	13.8	25.5
Traverse	19.3	55.4	7.3	13.4	26.6
Vida	<b>23.6*</b>	57.7	8.1	13.2	24.9
Volt	16.1	59.7	8.2	12.7	22.3
<u>Experimental</u>					
MT0415	21.4	57.6	7.8	14.6	25.7
MTHW047	19.9	58.2	8.0	13.5	25.0
PF906-408	<b>23.3*</b>	56.4	7.9	13.7	23.2
Average	19.6	57.7	8.0	13.6	24.1
PLSD (p=0.05)	3.0	1.5	0.2	1.0	2.2
CV%	8.5	1.5	1.9	4.5	5.3

1/ Yields are based on 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.

2/ Grain protein values adjusted to 12 percent grain moisture content.

\*\* Indicates highest yielding cultivar within a column.

\* Indicates cultivars yielding equal to highest yielding cultivar within a column based on Fisher's protected LSD (p=0.05).

Broadview Dryland Spring Wheat (Exp. 089995)

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Planted: April 23, 2008  
 Harvested: August 20, 2008  
 Fertility: 11-52-00, 100 lb/a in-furrow at planting  
 Herbicide: Roundup RT3, 12 oz/a, April 22, 2008  
 Insecticide: none applied  
 Previous Crop: summer fallow  
 Precipitation: n/a

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Table 5. Performance of 25 spring wheat cultivars and experimental lines tested under conventional dryland conditions near Molt, Montana during 2008. Cultivars listed alphabetically. (Exp. 089994).

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain Protein	Plant Height
	2008	2007-08	2006-08			%	
	----- bushels/acre -----			lb/bu	%	%	inches
<u>Commercial</u>							
AC Lillian	18.0			58.5	10.6	13.6	22.7
Choteau	15.4	9.8	11.0	60.2	10.8	12.4	21.0
Conan	14.9	12.7	12.4	60.6	11.0	12.9	20.4
Corbin	15.3	11.9		60.5	11.0	12.7	19.9
Explorer	16.6	15.2	14.9	59.8	10.9	13.3	20.6
Fortuna	17.2	14.0	13.6	60.1	11.0	13.1	25.2
Freyr	16.8	16.0	15.6	60.7	11.0	12.4	23.6
Granger	17.1	15.4		60.1	11.0	11.8	22.8
Hank	15.9	16.5	16.1	58.9	10.9	12.4	19.3
Jedd	15.1			61.2	11.0	11.9	17.6
Jerome	14.7	14.4	14.3	60.9	11.2	10.7	22.3
Kelby	13.6			60.9	10.7	13.7	19.0
Kuntz	15.9			61.3	11.2	11.7	23.1
McNeal	14.5	15.6	14.3	59.1	10.7	12.1	21.7
Norpro	14.9	14.0	13.1	59.4	10.8	13.0	20.8
Oneal	19.8			60.3	11.1	12.1	21.2
Outlook	19.3	18.4	17.0	59.0	10.6	12.0	23.9
Reeder	17.1	15.9	15.6	60.3	10.8	12.8	21.8
Superb	17.6			60.2	11.0	13.0	23.2
Traverse	19.6	14.8		58.8	10.8	10.7	24.2
Vida	18.0	16.2	15.5	59.6	10.9	12.6	19.4
Volt	17.1			62.7	11.4	11.4	20.4
<u>Experimental</u>							
MT0415	18.1	16.0		60.7	10.8	13.0	21.0
MTHW047	18.7			61.5	11.3	11.6	22.8
PF906-408	18.6			59.4	10.9	12.0	18.9
Average	16.8	14.8	14.4	60.2	10.9	12.4	21.5
PLSD (p=0.05)	ns	ns	ns	1.3	0.3	1.1	2.0
CV%	12.7	28.3	24.0	1.2	1.5	5.1	5.2

1/ Yields are based on 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.

2/ Grain protein values adjusted to 12 percent grain moisture content.

ns Indicates no significant difference between cultivars within a column based on Fisher's protected LSD (p=0.05).

#### Molt Dryland Spring Wheat (Exp. 089994)

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Planted:	April 8, 2008
Harvested:	August 15, 2008
Fertility:	11-52-00, 50 lb/a in-furrow at planting
Herbicide:	2,4-D
Insecticide:	none applied
Previous Crop:	spring barley
Precipitation:	n/a

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Table 6. Performance of 25 spring wheat cultivars and experimental lines tested under irrigation near Huntley, Montana during 2008. Cultivars listed alphabetically. (Exp. 089909).

Cultivar	1/ Grain Yield		Test Weight	Grain Moisture	2/ Grain Protein	Plant Height	Heading Date	
	2008	2007-08					Julian	Calendar
	----- bu/a -----		lb/bu	%	%	inches		
<u>Commercial</u>								
AC Lillian	93.9		62.3	12.0	11.5	47.9	171.0	Jun 19
Choteau	<b>111.8*</b>	101.8	63.9	12.7	10.0	38.2	169.0	Jun 17
Conan	99.0	92.3	63.4	11.9	10.8	37.6	170.0	Jun 18
Corbin	103.3	98.3	64.1	12.4	8.7	38.5	169.0	Jun 17
Explorer	102.1	93.2	63.1	12.5	10.7	37.0	167.0	Jun 15
Fortuna	104.2	86.9	63.7	12.3	10.5	46.9	171.3	Jun 19
Freyr	101.8	96.1	63.9	12.3	10.0	40.9	169.7	Jun 17
Granger	94.5	87.7	62.3	12.8	9.9	43.7	168.3	Jun 16
Hank	99.4	98.7	63.3	12.4	9.1	36.2	169.7	Jun 17
Jedd	<b>120.7*</b>		64.7	12.3	9.7	32.8	169.0	Jun 17
Jerome	<b>131.5**</b>	115.4	62.5	12.3	9.1	37.9	168.3	Jun 16
Kelby	98.4		64.4	12.4	11.0	35.0	167.3	Jun 15
Kuntz	92.1		63.8	12.7	9.2	33.8	170.0	Jun 18
McNeal	84.8	84.0	64.1	11.9	8.8	36.1	171.7	Jun 19
Norpro	107.4	95.2	63.0	12.6	9.3	35.6	170.7	Jun 18
Oneal	104.8		63.8	12.2	8.5	37.7	171.0	Jun 19
Outlook	86.4	86.9	63.0	11.8	8.8	38.8	172.0	Jun 20
Reeder	103.5	89.7	64.0	12.0	10.7	41.6	170.0	Jun 18
Superb	95.3		62.9	12.3	10.0	41.5	171.7	Jun 19
Traverse	94.9	90.1	61.3	11.9	8.5	43.8	167.7	Jun 15
Vida	95.2	97.3	63.6	12.5	9.3	37.6	170.3	Jun 18
Volt	106.2		64.2	12.6	9.4	34.7	170.7	Jun 18
<u>Experimental</u>								
MT0415	100.3	91.2	63.6	12.2	11.5	43.3	171.0	Jun 19
MTHW047	94.0		64.5	11.8	8.3	42.9	172.3	Jun 20
PF906-408	92.9		62.8	12.0	8.3	32.8	169.0	Jun 17
Average	100.7	94.0	63.4	12.3	9.7	38.9	169.9	Jun 17
PLSD (p=0.05)	20.0	ns	0.6	ns	1.0	2.4	1.3	
CV%	12.1	15.1	0.6	4.3	6.6	3.8	0.5	

1/ Yields are based on 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.

2/ Grain protein values adjusted to 12 percent grain moisture content.

\*\* Indicates highest yielding cultivar within a column.

\* Indicates cultivars yielding equal to highest yielding cultivar within a column based on Fisher's protected LSD (p=0.05).

ns Indicates no significant difference between cultivars within a column based on Fisher's protected LSD (p=0.05).

Huntley Irrigated Spring Wheat (Exp. 089909)

Planted:	March 14, 2008
Harvested:	August 15, 2008
Fertility:	50-20-10, 200 lb/a PPI, November 4, 2007; 32-0-0, 300 lb/a, March 18, 2008
Herbicide:	Curtail, 32 oz/a + Harmony Extra, 0.5 oz/a + R-11, 6 oz/a + AMS, 2 lb/a, May 16, 2008
Insecticide:	none
Previous Crop:	corn
Irrigation:	profile flooded April 29, June 17 and July 7, 2008
Precipitation:	7.66 inches

Table 7. Performance of 25 spring wheat cultivars and experimental lines tested under irrigation near Hysham during 2008. Cultivars listed alphabetically. (Exp. 089996).

Cultivar	1/ Grain Yield bu/a	Test Weight lb/bu	Grain Moisture %	2/ Grain Protein %	Plant Height inches	3/ Lodging 0-9
<u>Commercial</u>						
AC Lillian	61.3	56.3	9.5	18.1	42.7	6.8
Choteau	<b>120.9*</b>	60.6	10.2	14.0	38.6	2.1
Conan	98.1	60.1	12.2	13.6	37.5	1.2
Corbin	91.0	59.5	10.6	14.6	37.8	5.8
Explorer	86.6	57.5	10.0	15.0	35.6	3.6
Fortuna	83.3	59.3	10.1	14.5	42.0	6.3
Freyr	108.5	61.0	10.9	13.8	38.8	3.9
Granger	96.6	60.6	10.3	14.8	41.6	6.0
Hank	111.7	59.0	10.2	13.8	38.4	2.6
Jedd	108.0	60.3	10.3	13.6	35.7	1.2
Jerome	<b>128.5**</b>	61.0	10.4	12.4	38.0	0.0
Kelby	107.1	62.1	10.5	14.3	36.6	0.0
Kuntz	107.7	60.3	10.5	13.2	35.0	0.5
McNeal	110.6	61.8	10.5	14.5	39.5	1.9
Norpro	105.9	59.6	10.7	13.7	36.5	0.9
Oneal	<b>121.8*</b>	61.3	10.6	12.9	40.8	2.3
Outlook	97.8	59.2	9.7	13.9	39.0	3.9
Reeder	98.5	60.6	10.6	14.8	40.3	5.4
Superb	110.8	60.8	10.0	14.1	41.4	1.9
Traverse	110.5	58.4	9.9	13.1	41.2	0.8
Vida	92.2	58.8	10.4	14.9	38.5	5.3
Volt	<b>128.2*</b>	62.9	10.6	12.9	36.7	0.3
<u>Experimental</u>						
MT0415	110.3	61.4	10.5	14.6	42.9	1.7
MTHW047	78.3	60.5	10.2	14.7	41.7	5.3
PF906-408	111.4	58.7	10.0	13.7	36.8	1.2
Average	103.4	60.1	10.4	14.1	38.9	2.8
PLSD (p=0.05)	13.0	1.4	0.6	1.2	2.4	2.2
CV%	7.0	1.3	3.5	5.1	3.7	45.0

1/ Yields are based on 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.

2/ Grain protein values adjusted to 12 percent grain moisture content.

3/ Lodging severity scores of 0 to 9 represent no lodging to all stems flat on the ground, respectively.

\*\* Indicates highest yielding cultivar within a column.

\* Indicates cultivars yielding equal to highest yielding cultivar within a column based on Fisher's protected LSD (p=0.05).

#### Hysham Irrigated Spring Wheat (Exp. 089996)

Planted:	March 10, 2008
Harvested:	August 12, 2008
Fertility:	80 N-60 P <sub>2</sub> O <sub>5</sub> -10 K <sub>2</sub> O, PPI; 46-0-0, 217 lb/a, POST, March 25, 2008
Herbicide:	Bronate Advanced, 14 oz/a + Starane Ultra, 5 oz/a +Axial, 8.2 oz/a, POST
Insecticide:	none
Previous Crop:	sugar beets
Irrigation:	flood
Precipitation:	n/a

Table 8. Performance of 25 spring wheat cultivars and experimental lines tested under irrigation near Fromberg, Montana during 2008. Cultivars listed alphabetically. (Exp. 089997).

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain Protein	Plant Height	Lodging
	2008	2007-08	2006-08			%		
	----- bushels/acre -----			lb/bu	%	%	inches	0-9
<u>Commercial</u>								
AC Lillian	78.3			60.8	11.1	14.7	43.3	0.0
Choteau	95.5	<b>104.1*</b>	<b>107.2*</b>	62.3	11.5	12.5	33.9	0.0
Conan	83.1	88.4	90.6	60.2	12.7	13.3	34.2	0.0
Corbin	96.5	<b>98.4*</b>		61.8	11.5	12.6	34.5	0.0
Explorer	89.1	92.1	90.5	60.0	10.1	13.6	32.8	0.0
Fortuna	86.7	92.0	95.4	62.5	11.3	12.9	41.2	3.0
Freyr	97.2	<b>103.5*</b>	<b>104.0*</b>	62.2	12.2	12.6	35.7	0.0
Granger	94.9	97.8		62.4	11.5	13.7	40.0	0.3
Hank	<b>102.3*</b>	<b>105.6*</b>	<b>107.9*</b>	59.9	11.7	12.9	33.4	0.0
Jedd	93.3			60.8	11.7	12.7	29.8	0.0
Jerome	<b>100.2*</b>	<b>103.4*</b>	<b>106.0*</b>	61.1	11.4	11.9	33.8	0.0
Kelby	<b>103.7*</b>			63.5	10.7	12.9	31.4	0.0
Kuntz	97.1			62.3	11.2	11.7	32.4	0.0
McNeal	81.0	93.2	98.3	61.0	11.4	13.2	35.4	0.0
Norpro	<b>98.7*</b>	<b>103.8*</b>	<b>105.6*</b>	60.9	11.4	12.8	33.0	0.0
Oneal	94.5			59.8	12.6	13.1	37.8	0.0
Outlook	<b>106.8*</b>	<b>106.9**</b>	<b>105.5*</b>	60.6	11.7	11.6	37.4	0.0
Reeder	95.9	<b>101.7*</b>	<b>102.0*</b>	61.6	11.8	13.7	37.8	0.0
Superb	98.3			62.3	11.4	13.6	39.3	0.0
Traverse	<b>103.0*</b>	<b>103.0*</b>		60.4	10.7	12.1	38.2	0.0
Vida	<b>104.9*</b>	<b>106.6*</b>	<b>109.2**</b>	60.7	11.6	12.7	35.9	0.0
Volt	<b>109.1**</b>			63.2	12.0	12.0	32.8	0.0
<u>Experimental</u>								
MT0415	93.2	96.9		62.3	11.5	14.1	38.2	0.0
MTHW047	85.9			63.3	12.0	12.0	41.0	0.0
PF906-408	<b>104.9*</b>			59.7	12.4	13.2	32.6	0.0
Average	95.8	99.8	101.9	61.4	11.6	12.9	35.8	0.1
PLSD (p=0.05)	10.5	8.8	7.9	0.8	0.7	0.5	1.5	0.9
CV%	6.3	7.1	7.9	0.7	3.6	2.4	2.6	538.5

1/ Yields are based on 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.

2/ Grain protein values adjusted to 12 percent grain moisture content.

3/ Lodging severity scores of 0 to 9 represent no lodging to all stems flat on the ground, respectively.

\*\* Indicates highest yielding cultivar within a column.

\* Indicates cultivars yielding equal to highest yielding cultivar within a column based on Fisher's protected LSD (p=0.05).

Fromberg Irrigated Spring Wheat (Exp. 089997)

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Planted:	March 10, 2008
Harvested:	August 14, 2008
Fertility:	40 N – 60 P <sub>2</sub> O <sub>5</sub> , preplant; 46-0-0, 217 lb/a, March 26, 2008
Herbicide:	n/a
Insecticide:	none
Previous Crop:	sugar beets
Irrigation:	flood
Precipitation:	n/a

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Table 9. Grain yield<sup>1/</sup> of 25 spring wheat cultivars tested at six locations in south central Montana during 2008. Varieties listed by declining six-location average yield.

	Dryland				Irrigated				Six Location Average
	Huntley	Molt	Broadview	Ave.	Huntley	Hysham	Fromberg	Ave.	
	----- bushels/acre -----								
Jerome	<b>67.1*</b>	14.7	14.4	31.4	<b>131.5**</b>	<b>128.5**</b>	<b>100.2*</b>	<b>119.0**</b>	<b>75.2**</b>
Volt	<b>64.3*</b>	17.1	16.1	32.4	106.2	<b>128.2*</b>	<b>109.1**</b>	<b>114.6*</b>	<b>73.5*</b>
Oneal	<b>69.1*</b>	19.8	19.7	36.2	104.8	<b>121.8*</b>	94.5	<b>108.7*</b>	<b>72.4*</b>
Jedd	<b>68.2*</b>	15.1	<b>22.4*</b>	35.5	<b>120.7*</b>	108.0	93.3	<b>107.1*</b>	<b>71.3*</b>
Choteau	61.3	15.4	<b>22.1*</b>	32.3	<b>111.8*</b>	<b>120.9*</b>	95.5	<b>109.3*</b>	<b>70.8*</b>
PF906-408	<b>68.5*</b>	18.6	<b>23.3*</b>	37.3	92.9	111.4	<b>104.9*</b>	<b>103.9*</b>	<b>70.6*</b>
Hank	<b>69.5**</b>	15.9	18.5	34.1	99.4	111.7	<b>102.3*</b>	<b>105.8*</b>	<b>70.0*</b>
MT0415	<b>68.1*</b>	18.1	21.4	36.6	100.3	110.3	93.2	100.2	<b>68.4*</b>
Norpro	<b>64.1*</b>	14.9	16.4	31.3	107.4	105.9	<b>98.7*</b>	<b>104.8*</b>	<b>68.0*</b>
Freyr	<b>65.9*</b>	16.8	17.9	33.9	101.8	108.5	97.2	101.7	<b>67.8*</b>
Traverse	60.7	19.6	19.3	33.6	94.9	110.5	<b>103.0*</b>	101.7	<b>67.6*</b>
Reeder	<b>64.6*</b>	17.1	20.7	34.5	103.5	98.5	95.9	100.2	<b>67.4*</b>
Outlook	<b>65.9*</b>	19.3	<b>22.1*</b>	36.1	86.4	97.8	<b>106.8*</b>	97.7	<b>66.9*</b>
Vida	<b>68.1*</b>	18.0	<b>23.6*</b>	35.9	95.2	92.2	<b>104.9*</b>	97.4	<b>66.6*</b>
Superb	62.6	17.6	14.7	31.4	95.3	110.8	98.3	101.0	<b>66.2*</b>
Corbin	61.1	15.3	<b>24.9**</b>	33.4	103.3	91.0	96.5	97.3	65.3
Kelby	52.8	13.6	16.3	27.9	98.4	107.1	<b>103.7*</b>	102.2	65.1
Kuntz	59.3	15.9	12.0	29.3	92.1	107.7	97.1	99.1	64.2
Granger	<b>63.9*</b>	17.1	16.8	32.7	94.5	96.6	94.9	94.3	63.5
Conan	59.5	14.9	<b>23.1*</b>	32.5	99.0	98.1	83.1	94.2	63.4
Fortuna	58.1	17.2	<b>22.8*</b>	32.4	104.2	83.3	86.7	91.9	62.1
McNeal	60.3	14.5	18.4	31.6	84.8	110.6	81.0	91.7	61.7
Explorer	55.9	16.6	20.4	30.8	102.1	86.6	89.1	92.4	61.6
MTHW047	61.4	18.7	19.9	33.8	94.0	78.3	85.9	85.9	59.8
AC Lillian	57.2	18.0	<b>22.7*</b>	32.3	93.9	61.3	78.3	77.4	54.9
Average	63.1	16.8	19.6	33.2	100.7	103.4	95.8	100.0	66.6
PLSD (p=0.05)	6.5	ns	3.0	ns	20.0	13.0	10.5	15.3	9.1
CV%	6.2	12.7	8.5	17.1	12.1	7.0	6.3	16.1	20.6

1/ Yields are based on 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.

\*\* Indicates highest yielding cultivar within a column.

\* Indicates cultivars yielding equal to highest yielding cultivar within a column based on Fisher's protected LSD (p=0.05).

ns Indicates no significant difference between cultivars within a column based on Fisher's protected LSD (p=0.05).

Table 10. Performance of 25 spring wheat cultivars and experimental lines tested under both dryland and irrigated conditions at six locations in south central Montana during 2008. Cultivars listed alphabetically.

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain	Plant Height
	2008	2007-08	2006-08			Protein	
	----- bushels/acre -----			lb/bu	%	%	inches
<u>Commercial</u>							
AC Lillian	54.9			59.1	10.0	14.4	36.8
Choteau	<b>70.8*</b>	<b>70.5*</b>	<b>73.3*</b>	61.0	10.4	12.4	30.6
Conan	63.4	63.3	64.9	60.9	10.9	12.7	30.8
Corbin	65.3	66.2		61.1	10.5	12.2	31.0
Explorer	61.6	62.8	63.3	59.9	10.1	13.0	30.3
Fortuna	62.1	61.1	64.3	60.9	10.4	12.7	37.2
Freyr	<b>67.8*</b>	<b>69.0*</b>	<b>72.0*</b>	61.3	10.7	12.3	33.6
Granger	63.5	64.1		60.8	10.5	12.5	35.0
Hank	<b>70.0*</b>	<b>71.5*</b>	<b>74.6*</b>	59.7	10.4	12.0	30.1
Jedd	<b>71.3*</b>			61.5	10.5	11.9	28.5
Jerome	<b>75.2**</b>	<b>74.6**</b>	<b>76.3**</b>	60.2	10.4	11.3	31.6
Kelby	65.1			62.2	10.3	13.2	29.4
Kuntz	64.2			61.0	10.5	11.6	30.2
McNeal	61.7	63.8	67.0	60.7	10.3	12.2	31.7
Norpro	<b>68.0*</b>	68.2	<b>71.5*</b>	60.2	10.5	12.3	30.4
Oneal	<b>72.4*</b>			61.2	10.8	11.6	33.0
Outlook	<b>66.9*</b>	67.9	69.6	59.9	10.1	11.7	33.6
Reeder	<b>67.4*</b>	66.8	69.3	61.1	10.4	13.1	33.5
Superb	<b>66.2*</b>			60.8	10.3	12.8	34.7
Traverse	<b>67.6*</b>	67.2		58.8	10.0	11.6	34.9
Vida	<b>66.6*</b>	<b>69.2*</b>	<b>72.3*</b>	60.4	10.5	12.3	31.4
Volt	<b>73.5*</b>			62.7	10.7	11.4	29.7
<u>Experimental</u>							
MT0415	<b>68.4*</b>	67.4		61.3	10.3	13.4	34.5
MTHW047	59.8			61.8	10.5	11.9	35.1
PF906-408	<b>70.6*</b>			59.4	10.4	12.1	29.4
Average	66.6	67.1	69.9	60.7	10.4	12.3	32.3
PLSD (p=0.05)	9.1	5.9	5.3	0.8	0.4	0.6	1.7
CV%	20.6	16.4	16.4	2.0	5.2	7.6	8.1
Location-Years	6	9	12	6	6	6	6

1/ Yields are based on 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.

2/ Grain protein values adjusted to 12 percent grain moisture content.

\*\* Indicates highest yielding cultivar within a column.

\* Indicates cultivars yielding equal to highest yielding cultivar within a column based on Fisher's protected LSD (p=0.05).

Table 11. Performance of 25 spring wheat cultivars and experimental lines tested under irrigated conditions only in south central Montana during 2008. Cultivars listed alphabetically.

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain	Plant Height	3/ Lodging
	2008	2007-08	2006-08			Protein		0-9
	-----	bushels/acre	-----	lb/bu	%	%	inches	
<u>Commercial</u>								
AC Lillian	77.4			59.9	10.9	14.8	44.6	4.3
Choteau	<b>109.3*</b>	<b>106.3*</b>	<b>109.0*</b>	62.1	11.5	12.2	36.9	0.9
Conan	94.2	92.4	94.2	61.3	12.3	12.5	36.4	0.3
Corbin	97.3	97.3		61.9	11.5	12.0	36.9	2.2
Explorer	92.4	91.8	91.2	60.2	10.9	13.1	35.2	1.9
Fortuna	91.9	88.5	93.1	61.8	11.2	12.6	43.4	5.9
Freyr	101.7	100.9	104.8	62.2	11.8	12.1	38.5	1.8
Granger	94.3	92.8		61.7	11.5	12.8	41.8	3.1
Hank	<b>105.8*</b>	<b>104.7*</b>	<b>108.5*</b>	60.7	11.5	11.9	36.0	0.9
Jedd	<b>107.1*</b>			62.0	11.4	12.0	32.8	0.3
Jerome	<b>119.0**</b>	<b>112.5**</b>	<b>113.2**</b>	61.4	11.4	11.1	36.5	0.4
Kelby	102.2			63.3	11.2	12.8	34.3	0.0
Kuntz	99.1			62.1	11.5	11.4	33.7	0.1
McNeal	91.7	92.5	97.2	62.3	11.3	12.1	37.0	0.7
Norpro	<b>104.8*</b>	101.4	<b>105.7*</b>	61.2	11.5	11.9	35.0	0.4
Oneal	<b>108.7*</b>			61.8	11.8	11.5	38.8	0.6
Outlook	97.7	97.3	99.5	61.0	11.0	11.4	38.4	1.4
Reeder	100.2	96.6	99.7	62.1	11.4	13.0	39.9	2.1
Superb	101.0			62.0	11.2	12.6	40.8	0.7
Traverse	101.7	98.8		60.0	10.8	11.3	41.1	0.2
Vida	97.4	99.9	104.3	60.9	11.5	12.3	37.3	2.1
Volt	<b>114.6*</b>			63.4	11.7	11.4	34.7	0.1
<u>Experimental</u>								
MT0415	100.2	96.6		62.4	11.3	13.4	41.5	1.1
MTHW047	85.9			62.8	11.3	11.7	41.9	2.6
PF906-408	<b>103.9*</b>			60.5	11.4	11.8	34.1	0.2
Average	100.0	98.2	101.7	61.6	11.4	12.2	37.9	1.4
PLSD (p=0.05)	15.3	9.0	7.7	1.3	ns	1.0	2.2	2.1
CV%	16.1	12.6	12.2	2.2	6.4	8.7	6.1	156.6
Location-Years	3	5	7	3	3	3	3	3

1/ Yields are based on 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.

2/ Grain protein values adjusted to 12 percent grain moisture content.

3/ Lodging severity scores of 0 to 9 represent no lodging to all stems flat on the ground, respectively.

\*\* Indicates highest yielding cultivar within a column.

\* Indicates cultivars yielding equal to highest yielding cultivar within a column based on Fisher's protected LSD (p=0.05).

ns Indicates no significant difference between cultivars within a column based on Fisher's protected LSD (p=0.05).

Table 12. Performance of 25 spring wheat cultivars and experimental lines tested under dryland conditions only in south central Montana during 2008. Cultivars listed alphabetically.

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain	Plant Height
	2008	2007-08	2006-08			Protein	
	----- bushels/acre -----			lb/bu	%	%	inches
<u>Commercial</u>							
AC Lillian	32.3			58.2	9.2	14.1	29.0
Choteau	32.3	25.7	23.3	59.8	9.3	12.7	24.4
Conan	32.5	26.9	23.9	60.5	9.5	12.9	25.2
Corbin	33.4	27.4		60.3	9.5	12.5	25.2
Explorer	30.8	26.6	24.1	59.6	9.4	12.9	25.5
Fortuna	32.4	26.8	24.0	60.0	9.5	12.8	31.1
Freyr	33.9	29.0	26.2	60.4	9.6	12.5	28.7
Granger	32.7	28.2		59.8	9.4	12.3	28.3
Hank	34.1	30.0	27.1	58.7	9.4	12.1	24.1
Jedd	35.5			61.0	9.6	11.7	24.3
Jerome	31.4	27.2	24.6	59.0	9.5	11.4	26.6
Kelby	27.9			61.2	9.3	13.6	24.5
Kuntz	29.3			60.0	9.6	11.9	26.7
McNeal	31.6	27.9	24.7	59.1	9.3	12.2	26.4
Norpro	31.3	26.8	23.7	59.2	9.4	12.6	25.8
Oneal	36.2			60.7	9.8	11.8	27.2
Outlook	36.1	31.2	27.7	58.8	9.2	12.0	28.7
Reeder	34.5	29.5	26.6	60.1	9.4	13.1	27.1
Superb	31.4			59.6	9.4	13.0	28.6
Traverse	33.6	27.6		57.7	9.1	11.9	28.8
Vida	35.9	30.8	27.5	59.9	9.5	12.2	25.5
Volt	32.4			62.0	9.7	11.5	24.6
<u>Experimental</u>							
MT0415	36.6	30.9		60.2	9.3	13.5	27.5
MTHW047	33.8			60.8	9.7	12.2	28.4
PF906-408	37.3			58.4	9.3	12.4	24.7
Average	33.2	28.3	25.3	59.8	9.4	12.5	26.7
PLSD (p=0.05)	ns	ns	ns	0.9	0.2	0.8	1.8
CV%	17.1	18.7	19.3	1.7	2.7	6.7	6.9
Location-Years	3	4	5	3	3	3	3

1/ Yields are based on 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.

2/ Grain protein values adjusted to 12 percent grain moisture content.

ns Indicates no significant difference between cultivars within a column based on Fisher's protected LSD (p=0.05).