

RESULTS OF AGRONOMIC AND WEED SCIENCE RESEARCH CONDUCTED IN SOUTH CENTRAL MONTANA - 2010

The Annual Report of the Investigations at and Administration of the
Southern Agricultural Research Center, Huntley, Montana

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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.
- PROJECT LEADERS:** Kent A. McVay, Cropping System Specialist, SARC, Huntley
Qasim A. Khan, Research Associate, SARC, Huntley
Luther E. Talbert, Spring Wheat Breeder, PSPP, Bozeman
Susan P. Lanning, Spring Wheat Research Associate, PSPP, Bozeman
- PROJECT PERSONNEL:** Tom A. Fischer, Research Specialist and Farm Foreman, SARC, Huntley
Steve Lackman, Yellowstone County Extension, Billings
Byron Hould, Rosebud/Treasure County Extension, Forsyth
Lee Schmelzer, Stillwater County Extension, Columbus
Travis Standley, Carbon County Extension, Red Lodge
- COOPERATORS:** Greg Lackman, Hysham
Bill Linger, Molt
Ervin Schlemmer, Fromberg
Keith & Karen Schott, Broadview
- 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 2010 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 3 experimental lines.

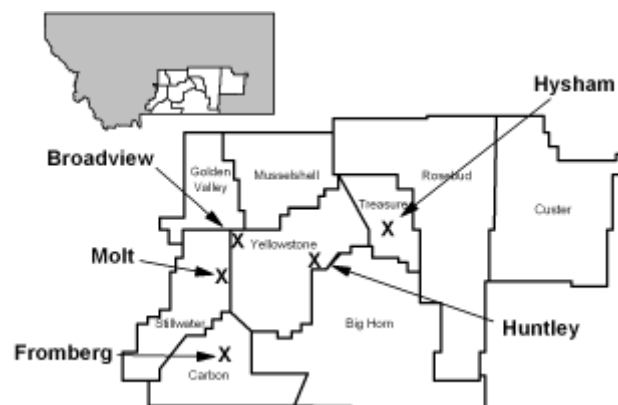


Figure 1. 2010 off-station spring wheat trial locations in south central Montana.

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 51 to 75 pounds per acre for the dryland sites and from 103 to 149 pounds per acre under irrigation. Seeding rates were not adjusted for germination. Information pertaining to the traits and characteristics of the 22 commercial spring wheat cultivars are provided in Table 2.

Test plots consisted of a 15-foot, 7-row plot with 7-inch row spacing under both irrigated and dryland conditions. 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 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.

RESULTS:

The 2010 spring wheat test sites had above average moisture during winter months, with above average rain or snow accumulating in October, January and February. Below average precipitation occurred during March and April, while above average precipitation occurred May through August. This higher than normal precipitation coupled with cooler than normal temperatures during May and July delayed crop development and maturity boosting spring wheat yield at the dryland sites, while causing increased lodging at irrigated sites. Above normal precipitation during August delayed harvesting at some sites. Neither Fusarium head blight (*aka*, Scab, *Fusarium graminearum*) nor stripe rust (*Puccinia striiformis*) was evident in any of the trials.

The average dryland spring wheat yield near Huntley in 2010 was 71 bu/a (Table 3), 18 bushels more per acre than the trial harvested the previous year. Yields ranged from 60 bu/a for 'Kelby' to 78 bu/a for 'Traverse'. Twelve other commercial cultivars produced yield from 71 to 77 bu/a, statistically equal to that of Traverse. Average test weight was 62.6 lb/bu, with all 25 entries having test weights heavier than 61 lb/bu. Grain protein levels averaged 10.1 percent and varied from 9.1 percent for Traverse to 11.6 percent for 'AC Lillian'. 'Vida' has been the highest yielding entry tested at this location the past three years, averaging 69 bu/a. Four other commercial entries including 'Hank', 'Jerome', 'Oneal' and Traverse have produced yields from 65 to 68 bu/a the past three years, equal to the yield of Vida.

Dryland spring wheat yields at Broadview averaged 37 bu/a in 2010, 8 bushels per acre more than the previous year (Table 4). Some cutting by the wheat stem sawfly (*Cephus cinctus* Norton) was observed at Broadview in 2010. Choteau, 'Mott' and 'MT0852' showed no stem cutting, while 'Kuntz' and 'Volt' suffered significant stem cutting that caused yield reduction in these entries. Yields varied from 31.6 bu/a for 'AP604 CL' to 43.8 bu/a for the experimental line 'MT0832'. Nine commercial cultivars produced yields equivalent to the yields of MT0832 at this location in 2010. Spring wheat test weights averaged 56.9 lb/bu and ranged from 51.3 lb/bu for Hank to 59.6 for MT0832. No entry produced test weights greater than 60 lb/bu. Grain protein levels averaged 12.6 percent, varying from 11.3 percent for Vida to 14.0 for AP604 CL.

Molt spring wheat yields averaged 36 bu/a in 2010 (Table 5), which was 10 bu/a more than the average spring wheat yields experienced at this site in 2009. Yield was not significantly different among entries in 2010 at Molt and ranged

from 31 bu/a to 41 bu/a. Average test weight was 55.9 lb/bu. Test weight varied from 53.5 lb/bu for Traverse to 57.6 lb/bu for Kelby spring wheat. Grain protein levels averaged 16.0 percent, the highest average protein content measured among the dryland sites harvested in 2010. Grain protein levels varied from 14.3 percent for Kuntz to 17.7 percent for 'McNeal'. Three-year average yield for spring wheat varieties tested during 2008, 2009 and 2010 at Molt averaged 26 bu/a with 'Outlook' producing the highest average yield of 31 bu/a.

Irrigated spring wheat yields at Huntley averaged 90 bu/a, and varied from 66 bu/a for 'AC Lillian' to 104 bu/a for Jerome (Table 6). Five other commercial cultivars produced yields between 95 and 103 bu/a, equal to the yield of Jerome grown under irrigation at Huntley in 2010. Commercial entry 'Fortuna' exhibited highest level of lodging (7.7 score) followed by AC Lillian. Few other commercial entries including 'Corbin', 'Superb', Traverse and the three experimental lines also exhibited some lodging. Average test weight was 57.2 lb/bu, with none of the spring wheat entries having test weights greater than 60 lb/bu. Grain protein levels averaged 14.6 percent in 2010, higher than the protein levels observed the previous year. Protein content varied from 13.1 for Jerome to 17.3 percent for AC Lillian. Jerome spring wheat has also been the highest yielding cultivar tested under irrigation at Huntley the past 2 and 3 years, averaging 107 and 115 bu/a, respectively.

Significant lodging was observed among most of the entries tested under irrigation at Hysham in 2010 (Table 7), but the commercial cultivars Kuntz, Mott, and 'Solano' exhibited little signs of lodging under these conditions. Average yield at Hysham was 71 bu/a. The grain yield was not significantly different among the entries in 2010. Average test weight was 59.7 lb/bu, with all entries having test weights greater than 58 lb/bu except Jerome. Grain protein levels averaged 14.8 percent and varied from 13.2 percent for Mott to 16.5 percent for Superb. Jerome spring wheat has also been the highest yielding cultivar tested under irrigation at Hysham the past three years, averaging 109 bu/a. Eight other entries produced yields equal to Jerome the past three years (Table 7).

Significant lodging was also observed among most of the entries tested under irrigation at Fromberg in 2010 (Table 8) that may have contributed to lower yield compared to last year. The average spring wheat yield was 89 bu/a in 2010 at Fromberg, about 24 bushels per acre lower than the trial harvested last year. Yields ranged from 75 bu/a for Reeder to 115 bu/a for Hank. Four commercial entries namely Oneal, Solano, Superb, and Traverse produced an average yield of 100 bu/a or more, statistically equal to the yield of Hank. Average test weight was 60.6 lb/bu, with all 25 entries having test weights greater than 58 lb/bu. Grain protein levels averaged 13.8 percent and varied from 12.6 percent for Jedd to 14.8 percent for AC Lillian. 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 2009 and 2010 averaged 101 bu/a. Three-year average yield for spring wheat cultivars tested from 2008-2010 was 100 bu/a. Hank has been the highest yielding spring wheat tested at Fromberg the past 2 and 3 years, averaging 118 and 113 bu/a respectively.

SUMMARY:

Hank hard red spring wheat was the highest yielding entry across all locations tested in south central Montana in 2010 and 2009-2010 (Tables 9 and 10), averaging 74, and 76 bu/a this year, and the past two year, respectively, under both dryland and irrigated conditions (Table 10). Hank and Jerome were the top yielding cultivars for the past three years with an average yield of 77 bu/ac. Across all locations for the past three years, only Jedd, Oneal, Traverse and Vida produced yields ranging from 70 to 75 bu/a, which is statistically equal to the yield of Hank and Jerome during the same period (Table 10). After only two years of testing in south central Montana, the Clearfield cultivar AP604 CL has shown promise of good yield potential across both dryland and irrigated environments (Table 10). Overall grain protein content was good averaging 13.5

percent (Table 10) with cultivars AC Lillian, AP604 CL and Superb having protein content of 14 percent or more.

Table 1. Adjusted seeding rates used to establish spring wheat cultivars at six off-station sites in south central Montana during 2010.

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>						
AP604CL	32.9	13,820	39.6	54.3	67.9	108.5
AC Lillian	38.7	11,740	46.6	63.9	79.9	127.8
Choteau	35.0	12,966	42.2	57.8	72.3	115.7
Conan	39.0	11,631	47.0	64.5	80.6	129.0
Corbin	43.7	10,397	52.6	72.1	90.2	144.3
Fortuna	41.4	10,960	49.9	68.4	85.6	136.9
Freyr	34.5	13,148	41.6	57.0	71.3	114.1
Hank	45.2	10,052	54.4	74.6	93.3	149.2
Jedd	38.3	11,840	46.2	63.3	79.2	126.7
Jerome	42.4	10,696	51.1	70.1	87.7	140.2
Kelby	34.3	13,239	41.3	56.6	70.9	113.3
Kuntz	32.9	13,802	39.6	54.3	68.0	108.7
McNeal	34.9	13,021	42.0	57.6	72.0	115.2
Molt	31.2	14,546	37.6	51.5	64.5	103.1
ONeal	36.7	12,367	44.2	60.6	75.8	121.3
Outlook	34.6	13,112	41.7	57.2	71.5	114.4
Reader	35.2	12,894	42.4	58.2	72.7	116.3
Solano	41.7	10,896	50.2	68.8	86.1	137.7
Superb	41.8	10,851	50.4	69.1	86.4	138.2
Traverse	40.7	11,159	49.0	67.2	84.1	134.4
Vida	34.2	13,257	41.3	56.6	70.8	113.1
Volt	35.4	12,812	42.7	58.5	73.2	117.1
<u>Experimental</u>						
MT0827	36.2	12,539	43.6	59.8	74.8	119.6
MT0832	36.9	12,294	44.5	61.0	76.3	122.0
MT0852	37.4	12,131	45.1	61.8	77.3	123.6

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.

Table 2. Selected characteristics and traits of 22 commercial spring wheat cultivars performance tested at six off-station sites in south central Montana during 2010.

Cultivar	Origin	Year 1/ of Release	2/ Market Class	3/ PVP Yes/No	4/ Maturity	5/ Straw Strength	6/ Disease Resistance						6/ Insect Resistance				8/ Clearfield Type	
							Fusarium				Wheat Stem Sawfly	Russian		Hessian		7/ Quality		
							Head Blight (Scab)	Leaf Rust	Stem Rust	Stripe Rust		Wheat Aphid	Fly (GP)	Milling	Baking			
																1-5		1-5
AC Lillian	AAFC	2006	HRS	-	M	MS	S	R	MR	-	R	S	-	-	-	-	N	
AP604 CL	AgriPro	2009	HRS	Y	M	S	MS	MS	MR	-	S	S	-	4	4	Y		
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		
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		
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		
Mott	NDSU	2009	HRS	Y	M-L	S	S	MS	MR	-	R	-	-	4	4	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		
Solano	WestBred	2007	HRS	Y	-	-	-	MR	MR	MR	-	-	-	-	-	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		

1/ AAFC=Agriculture & Agri-Food Canada; AgriPro=AgriPro COKER, Berthoud, Colorado; MSU=Montana State University; NDSU=North Dakota State University; SDSU=South Dakota State University; UI=University of Idaho; WestBred=WestBred Group, Monsanto Co., 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 tested under no-till, dryland conditions near Huntley, Montana during 2010. Cultivars listed alphabetically. (Exp. 109908).

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain		Plant Height	Lodging
	2010	2009-10	2008-10			Protein	Plant		
	----- bushels/acre -----			lb/bu	%	%	inches	0-9	
<u>Commercial</u>									
AC Lillian	60.5	53.8	54.9	61.8	10.0	11.6	43.6	0.0	
AP604 CL	69.7	62.8		64.1	10.4	10.2	40.9	0.0	
Choteau	71.3*	63.3	62.6	62.7	10.2	10.3	36.0	0.0	
Conan	64.9	53.1	55.2	61.8	10.1	11.2	36.3	0.0	
Corbin	76.5*	65.6*	64.1	62.4	10.2	10.8	40.8	0.0	
Fortuna	67.1	56.9	57.3	62.3	10.2	10.5	44.5	3.7	
Freyr	69.1	61.0	62.7	62.9	10.3	10.8	39.3	0.0	
Hank	76.3*	67.6*	68.2*	60.7	10.0	9.9	36.1	0.0	
Jedd	69.1	61.7	63.8	63.4	10.3	9.6	32.2	0.0	
Jerome	76.5*	68.5*	68.0*	61.3	10.1	9.5	36.2	0.0	
Kelby	60.3	50.6	51.3	63.8	10.0	11.1	34.9	0.0	
Kuntz	71.7*	62.4	61.4	62.9	10.1	9.8	35.1	0.0	
McNeal	67.3	61.6	61.2	61.5	9.9	9.8	38.6	0.0	
Mott	63.2			63.0	10.1	10.8	40.2	0.0	
Oneal	75.2*	66.7*	67.5*	62.8	10.6	9.9	37.9	0.0	
Outlook	70.9*	62.9	63.9	61.4	9.8	9.8	38.7	0.0	
Reeder	72.2*	63.6*	63.9	63.5	10.0	10.2	40.6	0.0	
Solano	73.4*			62.5	9.9	10.2	30.4	0.0	
Superb	71.7*	59.0	60.2	62.6	10.1	10.9	41.2	0.0	
Traverse	77.7**	66.7*	64.7*	61.0	9.8	9.1	43.8	0.0	
Vida	75.3*	69.8**	69.2**	63.0	10.4	9.3	37.8	0.0	
Volt	74.4*	61.2	62.2	64.1	10.3	10.2	36.6	0.0	
<u>Experimental</u>									
MT0827	68.9			64.1	10.5	9.7	39.1	0.0	
MT0832	76.1*			62.1	10.3	9.8	38.5	0.0	
MT0852	70.0			63.4	10.5	10.9	39.9	0.0	
Average	70.8	61.9	62.2	62.6	10.2	10.2	38.4	0.1	
PLSD (p=0.05)	7.5	6.4	4.9	0.7	0.3	0.8	2.0	0.4	
CV%	6.4	8.5	8.3	0.6	1.6	4.7	3.2	157.5	

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 Dryland Spring Wheat (Exp. 109908)

Planted:	March 29, 2010
Harvested:	August 6, 2010
Fertility:	50-0-0, preplant, March 24, 2010
Herbicide:	Colt AS, 22 oz/a; Axial XL, 16 oz/a; Affinity BS, 0.4 oz/a; R-11, 4 oz/ac; AMS, 2 lb/ac, May 17, 2010
Insecticide:	none applied
Previous Crop:	chemical fallow
Precipitation:	8.77 inches

Table 4. Performance of 25 spring wheat cultivars tested under no-till, dryland conditions near Broadview, Montana during 2010. Cultivars listed alphabetically. (Exp. 109995).

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain Protein	Plant Height
	2010	2009-10	2008-10				
	----- bushels/acre -----			lb/bu	%	%	inches
<u>Commercial</u>							
AC Lillian	35.2	32.5	29.0*	58.0	11.0	11.7	36.1
AP604 CL	31.6	31.9		56.5	10.7	14.0	34.6
Choteau	42.1*	36.1*	31.4*	56.6	10.6	13.0	30.4
Conan	35.4	32.5	29.3*	56.9	10.9	12.7	31.1
Corbin	35.4	33.5*	30.5*	56.2	10.7	13.3	31.8
Fortuna	36.5*	31.3	28.0*	56.3	10.7	13.0	37.8
Freyr	40.7*	34.6*	29.1*	58.5	11.1	11.7	33.1
Hank	38.4*	33.1*	27.9*	51.3	10.5	12.7	31.4
Jedd	32.1	31.7	28.8*	57.5	11.0	12.3	29.9
Jerome	35.1	32.5	25.9	55.6	10.8	12.3	31.4
Kelby	32.3	28.5	25.1	58.7	10.8	13.0	31.9
Kuntz	33.3	30.5	24.3	56.5	10.8	12.0	31.0
McNeal	33.1	31.3	27.6*	56.0	10.6	13.0	33.1
Mott	36.7*			56.7	10.7	13.3	36.0
Oneal	40.8*	37.3**	31.3*	58.8	11.2	11.7	32.5
Outlook	32.5	31.0	28.0*	55.4	10.5	12.3	32.5
Reeder	37.8*	35.1*	30.6*	57.8	10.7	12.7	33.1
Solano	32.4			55.9	10.6	12.7	29.1
Superb	37.0*	34.5*	27.8*	55.7	10.7	13.0	34.3
Traverse	34.0	30.8	27.3*	54.8	10.3	13.0	40.0
Vida	41.0*	36.2*	31.7**	58.3	10.8	11.3	30.4
Volt	33.8	30.3	25.3	56.9	10.7	12.7	30.4
<u>Experimental</u>							
MT0827	43.0*			59.3	11.0	12.7	34.0
MT0832	43.8**			59.6	10.0	12.7	32.5
MT0852	42.9*			59.5	11.2	12.0	32.9
Average	36.7	32.8	28.4	56.9	10.7	12.6	32.9
PLSD (p=0.05)	8.3	4.4	4.4	2.8	0.6	ns	2.8
CV%	13.0	11.2	16.2	3.0	3.3	7.0	5.1

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. 109995)

Planted: March 23, 2010
 Harvested: August 12, 2010
 Fertility: 38 lb N/a preplant, 22 lb N/a as 46-0-0 May 18, 2010
 Herbicide: 5 oz Turret LD6, + 3 oz Clarity; Roundup RT3, 16 oz/a, March 23, 2010
 Insecticide: none applied
 Previous Crop: fallow
 Precipitation: n/a

Table 5. Performance of 25 spring wheat cultivars tested under conventional dryland conditions near Molt, Montana during 2010. Cultivars listed alphabetically. (Exp. 109994).

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain Protein	Plant Height
	2010	2009-10	2008-10				
	----- bushels/acre -----			lb/bu	%	%	inches
<u>Commercial</u>							
AC Lillian	33.5	28.0	24.5	54.1	7.9	16.5	34.8
AP604 CL	34.6	32.4		57.0	8.3	16.5	33.7
Choteau	33.5	30.5	24.9	54.5	7.9	16.7	32.8
Conan	35.6	29.9	25.0	56.2	8.2	15.8	33.3
Corbin	32.6	29.4	24.4	56.8	8.4	15.3	29.3
Fortuna	36.0	30.3	26.1	55.7	8.3	14.9	38.6
Freyr	38.9	30.7	26.3	56.9	8.4	15.0	32.0
Hank	40.8	35.1	28.5*	55.3	8.1	16.4	31.6
Jedd	35.6	30.6	25.5	56.5	8.1	16.5	31.8
Jerome	36.6	30.2	25.0	55.7	8.3	15.5	33.5
Kelby	38.2	28.6	23.3	57.6	7.7	15.4	32.9
Kuntz	36.2	27.9	24.2	56.3	8.2	14.3	31.5
McNeal	31.8	26.1	22.2	54.0	8.0	17.7	33.6
Mott	31.3			55.0	8.0	17.2	32.3
Oneal	38.0	34.3	29.5*	57.2	8.6	16.4	33.6
Outlook	40.8	35.7	30.6**	55.6	8.0	15.4	34.9
Reeder	37.6	32.9	27.8*	57.4	8.3	15.9	33.7
Solano	40.1			56.1	8.2	15.3	27.7
Superb	35.5	31.1	26.4	55.0	8.0	16.1	36.0
Traverse	37.4	30.8	27.1*	53.5	7.5	16.4	36.1
Vida	36.0	33.3	27.8*	54.4	7.9	16.4	31.2
Volt	35.4	31.1	26.6*	56.2	8.0	15.8	31.6
<u>Experimental</u>							
MT0827	35.4			58.0	7.6	16.4	33.1
MT0832	37.6			54.5	7.9	16.7	32.2
MT0852	36.2			57.0	8.3	16.5	34.3
Average	36.2	30.9	26.1	55.9	8.1	16.0	33.0
PLSD (p=0.05)	ns	ns	4.0	2.5	0.6	1.5	3.7
CV%	11.2	16.3	16.0	2.5	4.0	5.2	6.9

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. 109994)

Planted: March 24, 2010
Harvested: August 17, 2010
Fertility: 26 lb N/a as 46-0-0, May 18, 2010
Herbicide: none applied
Insecticide: none applied
Previous Crop: fallow
Precipitation: n/a

Table 6. Performance of 25 spring wheat cultivars tested under irrigation near Huntley, Montana during 2010. Cultivars listed alphabetically. (Exp. 109909).

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain protein	Plant Height	Lodging	Heading Date	
	2010	2009-10	2008-10						lb/bu	%
	----- bushels/acre -----									
<u>Commercial</u>										
AC Lillian	65.7	77.9	83.2	55.9	9.7	17.3	42.1	6.0	172.0	Jun 20
AP604 CL	93.9	100.1*		59.6	10.0	14.9	39.9	1.3	166.7	Jun 14
Choteau	93.8	99.8*	103.8*	56.9	9.8	14.9	38.7	0.7	169.3	Jun 17
Conan	87.8	91.1	93.7	57.9	10.1	13.9	34.8	0.0	167.3	Jun 15
Corbin	79.4	89.0	93.8	55.9	10.0	14.3	36.0	5.3	165.7	Jun 13
Fortuna	74.3	79.0	87.4	57.2	10.1	14.6	41.3	7.7	169.3	Jun 17
Freyr	89.4	95.9*	97.9	57.8	10.0	14.5	38.5	1.0	168.3	Jun 16
Hank	103.4*	106.2*	103.9*	56.1	9.7	13.8	34.5	0.0	166.7	Jun 14
Jedd	95.4*	97.9*	105.5*	58.0	10.0	14.1	31.4	0.0	167.0	Jun 15
Jerome	104.3**	106.9**	115.1**	57.7	10.0	13.1	35.6	0.0	165.3	Jun 13
Kelby	90.7	87.8	91.3	58.8	10.0	14.7	35.3	0.3	165.7	Jun 13
Kuntz	93.8	94.9*	94.0	57.7	9.9	13.5	34.6	0.0	168.3	Jun 16
McNeal	87.7	83.4	83.8	56.7	9.6	14.7	39.9	0.0	170.3	Jun 18
Mott	90.7			58.1	9.9	14.6	40.8	0.0	171.3	Jun 19
Oneal	87.4	98.1*	100.4	57.1	10.1	14.5	37.7	0.0	169.3	Jun 17
Outlook	90.9	96.1*	92.9	54.5	9.2	15.5	39.5	0.0	171.0	Jun 19
Reeder	91.5	96.9*	99.1	59.0	9.9	14.8	38.4	0.0	167.3	Jun 15
Solano	94.9*			55.3	9.6	14.9	28.3	0.0	166.0	Jun 14
Superb	91.7	95.0*	95.1	56.4	9.6	15.3	40.0	3.7	168.7	Jun 16
Traverse	98.7*	102.5*	100.0	55.8	9.5	14.1	39.1	4.7	165.0	Jun 13
Vida	86.4	95.4*	95.3	55.6	9.9	14.9	36.3	2.3	169.7	Jun 17
Volt	97.8*	103.1*	104.1*	59.7	10.2	13.4	33.6	0.0	169.0	Jun 17
<u>Experimental</u>										
MT0827	85.4			57.9	10.0	15.0	37.2	4.7	168.0	Jun 16
MT0832	93.2			57.1	9.9	14.3	37.1	3.7	167.3	Jun 15
MT0852	84.2			57.5	10.1	15.0	37.4	3.3	170.0	Jun 18
Average	90.1	94.8	96.9	57.2	9.9	14.6	37.1	1.8	168.2	Jun 16
PLSD (p=0.05)	9.5	13.7	12.7	1.1	0.3	0.5	2.5	1.8	1.2	
CV%	5.5	11.9	13.7	1.1	1.7	2.1	4.1	59.3	0.4	

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).

Table 6 Continued.

Huntley Irrigated Spring Wheat (Exp. 109909)

Planted:	March 29, 2010
Harvested:	August 19, 2010
Fertility:	75-40-0, spread on Feb. 1, 2010; 100-0-0, March 24, 2010
Herbicide:	Colt AS, 20 oz/a; Axial XL, 16 oz/a; Affinity BS, 0.4 oz/a; R-11, 4 oz/ac; AMS, 2 lb/ac, May 5, 2010
Insecticide:	none
Previous Crop:	sugarbeets
Irrigation:	profile flooded: May 18 and July 1, 2010
Precipitation:	9.52 inches

Table 7. Performance of 25 spring wheat cultivars tested under irrigation near Hysham during 2010. Cultivars listed alphabetically. (Exp. 109996).

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain		Plant Height	Lodging
	2010	2009-10	2008-10			Protein			
	----- bushels/acre -----			lb/bu	%	%	inches	0-9	
<u>Commercial</u>									
AC Lillian	64.9	67.7	65.7	59.6	8.4	15.7	41.7	7.0	
AP604 CL	80.5	90.8		60.8	8.7	14.8	37.8	4.7	
Choteau	78.8	90.9	100.6*	60.1	8.7	14.9	37.8	4.7	
Conan	78.9	84.5	89.8	60.1	9.1	13.6	34.3	4.3	
Corbin	67.3	72.1	79.2	59.7	8.9	15.2	34.3	6.0	
Fortuna	64.5	70.6	75.3	59.9	8.8	13.6	40.2	7.7	
Freyr	78.4	79.5	88.3	59.9	8.7	14.9	35.4	6.0	
Hank	71.2	95.5	102.0*	58.5	8.5	14.4	34.3	4.0	
Jedd	90.1	98.9	101.8*	61.8	9.3	13.7	32.7	3.3	
Jerome	70.4	101.7	109.4**	56.3	8.4	14.8	34.3	6.7	
Kelby	76.4	85.3	91.8	61.6	8.8	14.9	33.5	4.0	
Kuntz	69.5	88.4	95.3*	60.6	8.9	13.8	35.0	2.0	
McNeal	79.2	95.9	100.0*	60.2	8.7	14.4	38.6	3.7	
Mott	70.1			61.5	9.0	13.2	39.0	1.3	
Oneal	69.3	85.0	98.3*	58.9	9.0	14.7	38.6	5.3	
Outlook	61.9	80.2	86.4	59.8	8.6	14.1	37.4	5.3	
Reeder	62.7	68.3	79.0	59.2	8.4	16.0	38.6	6.0	
Solano	79.2			59.9	8.6	15.3	31.5	1.0	
Superb	53.0	66.8	81.2	58.7	8.4	16.5	40.6	6.0	
Traverse	78.4	91.5	97.0*	58.7	7.9	14.2	39.0	6.7	
Vida	69.1	74.2	80.0	59.3	8.9	15.8	33.1	3.3	
Volt	74.4	90.7	103.0*	61.2	8.8	14.0	35.4	6.3	
<u>Experimental</u>									
MT0827	62.8			59.4	8.7	15.9	35.4	7.3	
MT0832	80.5			58.3	8.5	15.1	38.6	6.0	
MT0852	48.4			58.8	8.8	15.5	34.6	6.7	
Average	71.2	83.9	90.7	59.7	8.7	14.8	36.5	5.0	
PLSD (p=0.05)	ns	ns	17.0	2.3	0.5	1.2		2.6	
CV%	21.0	22.4	19.7	2.3	3.2	5.1		31.7	

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. 109996)

Planted: March 17, 2010
 Harvested: August 9, 2010
 Fertility: 60 lb N/a preplant; 273 lb N/a as 46-0-0 on May 20, 2010
 Herbicide: none
 Previous Crop: sugarbeets
 Irrigation: flood
 Precipitation: n/a

Table 8. Performance of 25 spring wheat cultivars tested under irrigation near Fromberg, Montana during 2010. Cultivars listed alphabetically. (Exp. 109997).

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain		Plant Height	Lodging
	2010	2009-10	2008-10			Protein			
	----- bushels/acre -----			lb/bu	%	%	inches	0-9	
<u>Commercial</u>									
AC Lillian	80.4	90.5	85.9	59.1	9.4	14.8	46.9	8.0	
AP604 CL	92.2	99.3		63.0	9.8	14.5	42.5	0.3	
Choteau	86.7	99.7	98.5	62.1	10.0	13.8	39.4	3.3	
Conan	76.6	91.0	88.4	60.5	10.0	13.5	38.5	5.7	
Corbin	83.4	94.0	94.4	59.8	9.3	14.3	40.0	7.3	
Fortuna	89.1	95.2	92.4	59.7	9.8	13.3	46.5	8.0	
Freyr	86.8	102.9*	101.1*	61.4	9.5	13.6	43.4	4.7	
Hank	114.5**	117.8**	112.9**	60.7	10.2	12.9	37.3	0.7	
Jedd	88.6	100.9	98.4	61.4	9.7	12.6	35.4	0.0	
Jerome	89.6	103.5*	102.5*	58.1	9.6	13.5	38.6	4.7	
Kelby	85.5	89.2	93.9	62.3	9.8	13.8	39.0	0.7	
Kuntz	87.3	100.6	99.1	60.4	9.9	12.9	39.1	0.3	
McNeal	83.9	101.4	94.9	61.1	9.7	13.8	42.0	3.0	
Mott	77.5			61.5	9.5	13.6	47.9	3.3	
Oneal	102.2*	116.3*	109.6*	59.6	10.6	13.2	40.3	3.0	
Outlook	90.8	106.2*	106.8*	59.0	10.0	13.5	44.5	7.3	
Reeder	74.5	95.5	95.9	60.7	9.3	14.4	43.8	5.3	
Solano	99.9*			62.4	9.5	13.8	34.4	0.0	
Superb	103.3*	108.3*	104.8*	61.1	9.9	14.1	43.8	1.3	
Traverse	102.0*	113.5*	109.6*	58.6	9.2	14.4	43.3	4.3	
Vida	77.1	97.6	100.1	59.1	9.2	13.9	40.7	5.7	
Volt	89.6	104.9*	106.6*	61.9	9.8	13.3	37.0	1.0	
<u>Experimental</u>									
MT0827	79.5			60.6	9.9	14.6	40.4	5.7	
MT0832	101.7*			60.3	9.8	13.6	41.3	2.0	
MT0852	76.6			60.3	9.9	14.5	41.1	7.0	
Average	88.8	101.4	99.8	60.6	9.7	13.8	41.1	3.7	
PLSD (p=0.05)	21.3	15.1	12.1	1.4	0.7	0.8	3.1	3.5	
CV%	14.6	10.1	9.1	1.4	4.2	3.8	4.6	57.5	

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. 109997)

Planted:	March 16,, 2010
Harvested:	August 10, 2010
Fertility:	110 lb N/a preplant; 223 lb N/a as 46-0-0 May 19, 2010
Herbicide:	n/a
Previous Crop:	sugarbeets
Irrigation:	flood
Precipitation:	n/a

Table 9. Grain yield^{1/} of 25 spring wheat cultivars tested at six locations in south central Montana during 2010. Varieties listed by declining six-location average yield.

	Dryland				Irrigated				Six Location Average
	Huntley	Molt	Broadview	Ave.	Huntley	Hysham	Fromberg	Ave.	
	----- bushels/acre -----								
Hank	76.3*	40.8	38.4*	51.6*	103.4*	71.2	114.5**	97.0**	74.3**
MT0832	76.1*	37.6	43.8**	52.3**	93.2	80.5	101.7*	91.5*	71.9*
Traverse	77.7*	37.4	34.0	49.5*	98.7*	78.4	102.0*	92.8*	71.1*
Solano	73.4*	40.1	32.4	47.5*	94.9*	79.2	99.9*	92.1*	69.8*
Oneal	75.2*	38.0	40.8*	52.1*	87.4	69.3	102.2*	86.5*	69.3*
Jerome	76.5*	36.6	35.1	49.8*	104.3**	70.4	89.6	87.8*	68.8*
Volt	74.4*	35.4	33.8	47.8*	97.8*	74.4	89.6	88.1*	68.0*
Choteau	71.3*	33.5	42.1*	50.2*	93.8	78.8	86.7	85.8*	68.0*
Jedd	69.1	35.6	32.1	44.8	95.4*	90.1	88.6	91.0*	67.9*
AP604 CL	69.7	34.6	31.6	46.0	93.9	80.5	92.2	88.9*	67.4*
Freyr	69.1	38.9	40.7*	49.4*	89.4	78.4	86.8	85.0*	67.2*
Outlook	70.9*	40.8	32.5	49.1*	90.9	61.9	90.8	81.0	65.1
Kuntz	71.7*	36.2	33.3	46.6*	93.8	69.5	87.3	83.4	65.0
Superb	71.7*	35.5	37.0*	47.4*	91.7	53.0	103.3*	82.3	64.9
McNeal	67.3	31.8	33.1	43.9	87.7	79.2	83.9	84.7*	64.3
Vida	75.3*	36.0	41.0*	51.0*	86.4	69.1	77.1	77.2	64.1
Kelby	60.3	38.2	32.3	42.7	90.7	76.4	85.5	84.2	63.4
Conan	64.9	35.6	35.4	44.8	87.8	78.9	76.6	81.6	63.2
Reeder	72.2*	37.6	37.8*	49.3*	91.5	62.7	74.5	76.1	62.7
Corbin	76.5*	32.6	35.4	48.4*	79.4	67.3	83.4	76.2	62.3
MT0827	68.9	35.4	43.0*	48.7*	85.4	62.8	79.5	75.8	62.2
Mott	63.2	31.3	36.7*	44.7	90.7	70.1	77.5	78.9	61.8
Fortuna	67.1	36.0	36.5*	46.8*	74.3	64.5	89.1	75.9	61.3
MT0852	70.0	36.2	42.9*	49.9*	84.2	48.4	76.6	69.4	59.7
AC Lillian	60.5	33.5	35.2	42.9	65.7	64.9	80.4	70.7	56.8
Average	70.8	36.2	36.7	47.9	90.1	71.2	88.8	83.4	65.6
PLSD (p=0.05)	7.5	ns	8.3	5.8	9.5	ns	21.3	12.4	7.5
CV%	6.4	11.2	13.0	12.8	5.5	21.0	14.6	15.7	17.3

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 tested under both dryland and irrigated conditions at six locations in south central Montana during 2010. Cultivars listed alphabetically.

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain Protein	Plant Height
	2010	2009-10	2008-10				
	----- bushels/acre -----			lb/bu	%	%	inches
<u>Commercial</u>							
AC Lillian	56.8	58.4	58.9	58.1	9.4	14.1	42.2
AP604 CL	67.4*	69.6		60.2	9.6	14.0	39.5
Choteau	68.0*	70.0	72.5*	58.9	9.5	13.7	36.1
Conan	63.2	63.7	65.5	58.9	9.7	13.4	35.2
Corbin	62.3	63.9	66.3	58.5	9.6	13.8	37.1
Fortuna	61.3	60.5	63.0	58.6	9.7	13.1	42.5
Freyr	67.2*	67.4	69.9	59.5	9.7	13.2	38.6
Hank	74.3**	75.9**	76.6*	57.2	9.5	13.2	34.8
Jedd	67.9*	70.3*	73.0*	59.7	9.7	13.0	32.2
Jerome	68.8*	73.9*	77.0**	57.5	9.6	13.1	35.4
Kelby	63.4	61.6	65.0	60.4	9.5	13.7	35.3
Kuntz	65.0	67.5	68.6	59.0	9.6	12.6	35.0
McNeal	64.3	66.6	67.1	58.3	9.4	13.8	38.4
Mott	61.8			59.5	9.6	13.5	41.2
Oneal	69.3*	72.9*	75.2*	59.0	10.0	13.2	37.1
Outlook	65.1	68.7	70.3	57.7	9.4	13.0	38.8
Reeder	62.7	65.4	68.1	59.5	9.4	13.8	39.0
Solano	69.8*			58.7	9.4	13.5	30.5
Superb	64.9	65.8	67.9	58.2	9.5	14.1	39.8
Traverse	71.1*	72.6*	73.5*	57.1	9.0	13.4	41.6
Vida	64.1	67.7	69.4	58.2	9.5	13.4	36.3
Volt	68.0*	70.2*	73.9*	60.0	9.6	13.2	34.4
<u>Experimental</u>							
MT0827	62.2			59.9	9.6	13.9	37.7
MT0832	71.9*			58.6	9.4	13.6	37.4
MT0852	59.7			59.4	9.8	13.9	37.8
Average	65.6	67.6	69.6	58.8	9.6	13.5	37.4
PLSD (p=0.05)	7.5	5.8	5.2	1.2	0.2	0.8	1.8
CV%	17.3	18.4	19.1	3.0	3.8	8.1	6.0
Location Years	6	12	18	6	6	6	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).

Table 11. Performance of 25 spring wheat cultivars tested under irrigated conditions only in south central Montana during 2010. Cultivars listed alphabetically.

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain		Plant Height	Lodging
	2010	2009-10	2008-10			Protein			
	----- bushels/acre -----			lb/bu	%	%	inches	0-9	
<u>Commercial</u>									
AC Lillian	70.7	78.7	78.3	58.2	9.2	16.0	44.5	7.0	
AP604 CL	88.9*	96.7*		61.1	9.5	14.8	41.2	2.1	
Choteau	85.8*	96.8*	100.9*	59.7	9.5	14.5	39.0	2.9	
Conan	81.6	88.9	90.6	59.5	9.7	13.7	36.6	3.3	
Corbin	76.2	85.0	89.1	58.5	9.4	14.6	38.0	6.2	
Fortuna	75.9	81.6	85.0	58.9	9.5	13.8	43.9	7.8	
Freyr	85.0*	92.8	95.7	59.7	9.4	14.3	41.0	3.9	
Hank	97.0**	106.5**	106.3*	58.4	9.5	13.7	35.9	1.6	
Jedd	91.0*	99.2*	101.9*	60.4	9.7	13.5	33.4	1.1	
Jerome	87.8*	104.0*	109.0**	57.4	9.3	13.8	37.1	3.8	
Kelby	84.2	87.4	92.3	60.9	9.5	14.5	37.1	1.7	
Kuntz	83.4	94.6	96.1	59.6	9.6	13.4	36.9	0.8	
McNeal	84.7*	93.5	92.9	59.3	9.4	14.3	40.9	2.2	
Mott	78.9			60.3	9.5	13.8	44.3	1.6	
Oneal	86.5*	99.8*	102.7*	58.5	9.9	14.1	39.0	2.8	
Outlook	81.0	94.2	95.4	57.8	9.3	14.4	42.0	4.2	
Reeder	76.1	86.9	91.3	59.6	9.2	15.1	41.1	3.8	
Solano	92.1*			59.2	9.2	14.7	31.3	0.3	
Superb	82.3	90.0	93.7	58.7	9.3	15.3	41.9	3.7	
Traverse	92.8*	102.5*	102.2*	57.7	8.9	14.2	41.2	5.2	
Vida	77.2	89.0	91.8	58.0	9.3	14.9	38.5	3.8	
Volt	88.1*	99.6*	104.6*	60.9	9.6	13.6	35.3	2.4	
<u>Experimental</u>									
MT0827	75.8			59.3	9.5	15.1	38.8	5.9	
MT0832	91.5*			58.6	9.4	14.3	39.2	3.9	
MT0852	69.4			58.9	9.6	15.0	39.2	5.7	
Average	83.4	93.4	95.8	59.2	9.4	14.4	39.1	3.5	
PLSD (p=0.05)	12.4	10.0	8.4	1.5	0.4	0.8	2.0	2.5	
CV%	15.7	16.2	16.3	2.6	4.2	6.1	4.2	76.3	
Location Years	3	6	9	3	3	3	2	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 tested under dryland conditions only in south central Montana during 2010. Cultivars listed alphabetically.

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain Protein	Plant Height
	2010	2009-10	2008-10				
	----- bushels/acre -----			lb/bu	%	%	inches
<u>Commercial</u>							
AC Lillian	46.0	42.4		59.2	9.8	13.6	37.8
AP604 CL	50.2*	43.3*	40.6	58.1	9.6	13.2	33.2
Choteau	44.8	38.5	37.3	58.3	9.7	13.3	33.7
Conan	48.4*	42.8*	40.6	58.4	9.8	13.1	36.3
Corbin	46.8*	39.5	38.3	58.3	9.8	12.9	41.2
Fortuna	49.4*	42.1	40.8	59.3	9.9	12.5	36.2
Freyr	51.6*	45.2*	43.1*	55.9	9.6	12.9	33.7
Hank	44.8	41.3	40.4	58.9	9.8	12.8	31.0
Jedd	42.7	35.9	34.2	60.0	9.5	13.2	33.4
Jerome	46.6*	40.3	37.7	58.5	9.7	12.1	33.1
Kelby	43.9	39.7	38.1	57.2	9.5	13.5	35.8
Kuntz	44.7			58.7	9.7	13.6	38.1
McNeal	52.1*	46.1*	44.1*	59.5	10.1	12.6	35.2
Mott	49.1*	43.2*	42.1*	57.7	9.5	12.4	35.6
Oneal	49.3*	43.8*	41.9*	59.4	9.7	12.9	36.8
Outlook	51.0*	46.4**	44.3**	58.5	9.7	12.4	34.1
Reeder	47.8*	40.9	39.4	59.1	9.7	13.0	33.5
Solano	42.9	38.1	37.1	58.0	9.6	13.3	39.8
Superb	49.8*	43.7*	40.9*	57.6	9.8	12.3	33.8
Traverse	47.4*	41.5	38.9	57.6	9.6	13.3	37.7
Vida	47.5*			58.2	9.6	12.7	29.7
Volt	49.5*	42.7*	41.2*	56.4	9.2	12.9	41.9
<u>Experimental</u>							
MT0827	48.7*			60.5	9.7	13.0	36.5
MT0832	52.3**			58.7	9.4	13.1	35.5
MT0852	49.9*			60.0	10.0	13.2	36.4
Average	47.9	41.9	40.1	58.5	9.7	13.0	35.6
PLSD (p=0.05)	5.8	3.8	3.4	1.7	0.3	1.1	2.6
CV%	12.8	13.6	14.9	3.1	3.4	8.5	6.1
Location Years	3	6	9	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).