

RESULTS OF AGRONOMIC AND WEED SCIENCE RESEARCH CONDUCTED IN SOUTH CENTRAL MONTANA - 2009

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

<http://www.sarc.montana.edu/annualreport/2009/>

- 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:** Kenneth D. Kephart, Agronomist, SARC, Huntley
Geraldine B. Opena, 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, Farmer Cooperator, Hysham
Bill Linger, Farmer Cooperator, Molt
Ervin Schlemmer, Farmer Cooperator, Fromberg
Keith & Karen Schott, Farmer Cooperators, 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 2009 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 21 commercial cultivars, 1 experimental line and 3 blends comprised of 20 percent 'Choteau' and 80 percent 'Conan', 'Corbin' or 'Vida' spring wheat.

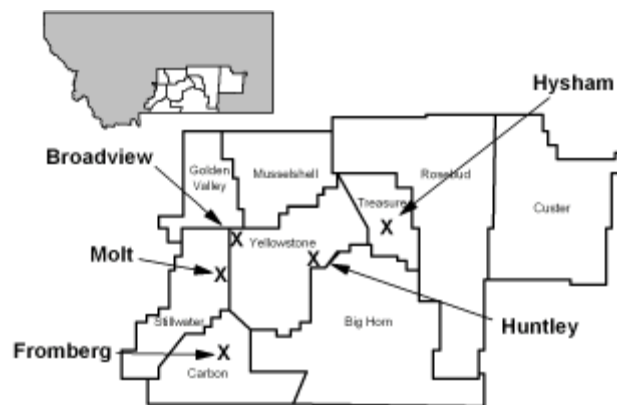


Figure 1. 2009 off-station spring wheat trial locations in south central Montana.

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 37 to 59 pounds per acre for the dryland sites and from 75 to 118 pounds per acre under irrigation. Seeding rates were not adjusted for germination. Information pertaining to the traits and characteristics of the 21 commercial spring wheat cultivars are provided in Table 2.

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.

RESULTS:

The 2009 spring wheat test sites were dry over-winter, with very little rain or snow accumulating during November, January and February. Above average precipitation occurred during March and April, which delayed planting of all spring wheat test locations. Conditions were dry during most of May and the first half of June, but cooler than normal temperatures during June and July delayed crop development helping to avoid drought-related stresses in the crop at the dryland sites. Above normal precipitation also occurred during a period from the last week of June throughout the month of July. The moderate temperatures occurring during late June and throughout July delayed crop maturity. Neither *Fusarium* head blight (*aka*, Scab, *Fusarium graminearum*) or stripe rust (*Puccinia striiformis*) was evident in any of the trials. Both the dryland and irrigated spring wheat trial at Huntley was briefly exposed to pea-size hail on July 26. No stem breakage occurred, but a small amount of head shatter was observed.

The average dryland spring wheat yield near Huntley in 2009 was 53 bu/a (Table 4), ten bushels less per acre than the trial harvested the previous year. Yields ranged from 41 bu/a for 'Kelby' to 64 bu/a for 'Vida'. 'Jerome' spring wheat and the 'Choteau/Vida' blend averaged 60 bu/a, statistically equal to that of Vida. Average test weight was 60.7 lb/bu, with all 25 entries having test weights heavier than 58 lb/bu. Grain protein levels averaged 12.1 percent and varied from 9.9 percent for 'Traverse' to 14.8 percent for Kelby. Vida has also been the highest yielding entry tested at this location the past two years, averaging 66 bu/a. Five other commercial entries including 'Hank', 'Jedd', Jerome, 'Oneal' and 'Outlook' have produced yields from 60 to 64 bu/a the past two years, equal to the yield of Vida.

Dryland spring wheat yields at Broadview averaged 29 bu/a in 2009, 10 bushels per acre more than the previous year (Table 5). Yields varied from 25 bu/a for Kelby to 37 bu/a for the Choteau/Vida blend. No other cultivar or blend produced yields equivalent to the yields of the Choteau/Vida blend at this location in 2009. Spring wheat test weights were heavier at the Broadview location in 2009 compared to 2008, averaging 59.1 lb/bu. Most entries possessed test weights greater than 58 lb/bu. Grain protein levels averaged 14.1 percent, varying from 11.8 percent for 'Kuntz' to 15.1 for 'Superb'. No cutting by the wheat stem sawfly (*Cephus cinctus* Norton) was observed at Broadview in 2009.

Molt spring wheat yields averaged 26 bu/a in 2009 (Table 6), which also was 10 more bu/a than the average spring wheat yields experienced at this site in 2008. Yields ranged from 22 bu/a for Kelby to 31 bu/a for Vida. Eight other entries, 'AP604 CL', Hank, Jedd, Oneal, 'Reeder', 'Volt', the 'Choteau-Conan' blend and the Choteau-Vida blend, produced yields from 27 to 30 bu/a which were statistically equal to the yields of Vida. Average test weight at Molt in 2009 was 59.8 lb/bu. Test weight varied from 57.2 lb/bu for Jerome to 61.9 lb/bu for AP604 CL spring wheat. Grain protein levels averaged 15.9 percent, the highest average protein content measured among the dryland sites harvested in 2009. Grain protein levels varied from 14.9 percent for Kelby to 17.4 percent for Conan. Two-year average yield for spring wheat varieties tested during 2008 and 2009 at Molt averaged 21 bu/a, with Oneal spring wheat averaging 25 bu/a. Three-year average yield for spring wheat varieties tested during 2007, 2008 and 2009 in Molt also averaged 18 bu/a, with Outlook spring wheat averaging 21 bu/a.

Irrigated spring wheat yields at Huntley averaged 100 bu/a, and varied from 76 bu/a for 'McNeal' to 110 bu/a for Jerome (Table 7). Except for commercial entries AC Lillian, 'Fortuna' and 'Granger', very little or no lodging was observed among most of the entries tested. No fewer than 12 commercial cultivars, the MT0414 experimental line and two of the blends produced yields between 100 and 108 bu/a, equal to the yield of Jerome grown under irrigation at Huntley in 2009. Average test weight was 60.9 lb/bu, with all of the spring wheat entries having test weights greater than 58 lb/bu. Grain protein levels averaged 12.4 percent in 2009, almost 3 percentage points higher than protein levels observed the previous year. Protein content varied from 11.2 for Traverse to 14.2 percent for the AC Lillian. Jerome spring wheat has also been the highest yielding cultivar tested under irrigation at Huntley the past 2 and 3 years, averaging 121 and 114 bu/a, respectively.

Significant lodging was observed among most of the entries tested under irrigation at Hysham in 2009 (Table 8), but the commercial cultivars Hank, Jedd, Jerome, Kuntz and Volt exhibited little or no signs of lodging under these conditions. Average yields at Hysham were 95 bu/a. The highest yielding spring wheat cultivar tested at Hysham was Jerome, averaging 133 bu/a. Six commercial entries (Hank, Jedd, Kuntz, McNeal, MT0414, Traverse and Volt) had yields from 105 to 122 bu/a, which were equal to the highest yielding entry. Average test weight was 58.4 lb/bu, with most of the hard red spring wheat entries having test weights greater than 58 lb/bu. Grain protein levels averaged 13.6 percent and varied from 12.0 percent for Jerome and Volt to 15.8 percent for AC Lillian. Jerome spring wheat has also been the highest yielding cultivar tested under irrigation at Hysham the past 2 years, averaging 129 bu/a. Entries producing yields equal to Jerome the past two years include Choteau, Hank, Oneal and Volt spring wheat.

Except for the cultivar Fortuna, almost no lodging was observed among the entries grown at Fromberg compared to the irrigated site at Hysham in 2009. The average spring wheat yield at Fromberg in 2009 was 113 bu/a (Table 9), making Fromberg the highest yielding test site this past season. Yields ranged from 93 bu/a for Kelby to 130 bu/a for Oneal. Only Traverse produced an average yield (125 bu/a) equal to the yield of Oneal. Average test weight was 61.3 lb/bu, with all 25 entries having test weights greater than 58 lb/bu. Grain protein levels averaged 11.5 percent and varied from 10.0 percent for MT0414 to 14.1 percent for Kelby. 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 2008 and 2009 averaged 105 bu/a, with the cultivar Volt producing the highest two year average of 115 bu/a. Three-year average yield for spring wheat cultivars tested during 2007 to 2009 also was 105 bu/a. Outlook has been the highest yielding spring wheat tested at Fromberg the past three years, averaging 112 bu/a.

SUMMARY:

Jerome hard red spring wheat was the highest yielding entry across all locations tested in south central Montana during 2007-2009 (Tables 10 and 11), averaging 79, 77 and 76 bu/a for the past year, past two years and past three years, respectively, under both dryland and irrigated conditions (Table 11). Jerome also has been the highest yielding entry tested only under irrigation (Tables 10 and 12), averaging 120 bu/a in 2009, 119 bu/a for 2008-2009 and 115 bu/a for 2007-2009. Across all locations for the past three years, only Choteau and Hank have produced yields of 71 to 74 bu/a, which is statistically equal to the yield of Jerome during the same period of testing (Table 11). Only Choteau and Hank have produced yields equal to those of Jerome under irrigated conditions (Table 11). After only one year of testing in south central Montana, the Clearfield cultivar AP604 CL has shown promise of very good yield potential across both dryland and irrigated environments (Table 10). AC Lillian and Kelby consistently possessed the highest grain protein level among entries tested in 2009 (Table 12), but at the cost of a substantial yield penalty compared to better adapted cultivars. Conversely, most newer, high yielding cultivars demonstrate average to below average protein levels in these trials where nitrogen management is uniformly applied to all entries.

Table 1. Adjusted seeding rates used to establish spring wheat cultivars and blends tested at five off-station sites in south central Montana during 2009.

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	27.3	16,650	32.9	45	56.3	90
AP604CL	31.0	14,655	37.3	51	64.0	102
Choteau	26.9	16,859	32.5	44	55.6	89
Conan	29.5	15,400	35.5	49	60.9	97
Corbin	32.0	14,168	38.6	53	66.2	106
Fortuna	32.7	13,898	39.4	54	67.5	108
Freyr	29.8	15,260	35.8	49	61.5	98
Granger	30.6	14,840	36.9	51	63.2	101
Hank	32.6	13,935	39.3	54	67.3	108
Jedd	30.9	14,710	37.2	51	63.8	102
Jerome	27.8	16,314	33.5	46	57.5	92
Kelby	27.9	16,271	33.6	46	57.6	92
Kuntz	22.8	19,949	27.4	38	47.0	75
McNeal	27.9	16,274	33.6	46	57.6	92
Oneal	28.6	15,869	34.5	47	59.1	95
Outlook	27.3	16,659	32.8	45	56.3	90
Reeder	31.4	14,452	37.9	52	64.9	104
Superb	31.9	14,234	38.4	53	65.9	105
Traverse	26.8	16,928	32.3	44	55.4	89
Vida	29.2	15,527	35.2	48	60.4	97
Volt	26.6	17,058	32.1	44	55.0	88
<u>Experimental</u>						
MT0414	22.6	20,094	27.2	37	46.7	75
<u>Blends with 20% Choteau</u>						
Choteau-Conan	35.9	12,658	43.2	59	74.1	118
Choteau-Corbin	30.7	14,800	37.0	51	63.4	101
Choteau-Vida	35.5	12,794	42.8	59	73.3	117

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 21 commercial spring wheat cultivars performance tested at six off-station sites in south central Montana during 2009.

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					Wheat	Russian	Hessian	Quality		
							Head Blight (Scab)	Leaf Rust	Stem Rust	Stripe Rust	Stem Sawfly	Wheat Aphid	Fly (GP)	Milling	Baking		
				Yes/No										1-5	1-5	Yes/No	
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	
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	
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	

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 and blends tested under no-till, dryland conditions near Huntley, Montana during 2009. Cultivars listed alphabetically. (Exp. 099908).

Cultivar	1/ Grain Yield		Test Weight	Grain Moisture	2/ Grain	Plant Height	Heading Date	
	2009	2008-09			Protein		Julian	Calendar
	-----	bu/a	-----	lb/bu	%	inches		
<u>Commercial</u>								
AC Lillian	47.1	52.1	58.1	9.9	13.0	38.4	173.0	Jun 22
AP604 CL	56.0		61.7	10.3	11.5	37.2	167.3	Jun 16
Choteau	55.2	58.3	60.7	10.1	13.0	32.8	169.0	Jun 18
Conan	41.2	50.4	60.4	10.1	13.5	32.6	169.0	Jun 18
Corbin	54.7	57.9	61.1	10.1	13.0	34.3	168.3	Jun 17
Fortuna	46.7	52.4	60.5	10.2	11.4	42.1	168.7	Jun 17
Freyr	52.9	59.4	61.3	10.2	12.1	35.6	171.0	Jun 20
Granger	55.5	59.7	60.0	10.1	12.1	41.2	168.7	Jun 17
Hank	58.9	64.2*	60.4	10.1	11.5	32.2	169.3	Jun 18
Jedd	54.2	61.2*	61.9	10.2	12.2	28.9	168.7	Jun 17
Jerome	60.4*	63.8*	61.3	10.2	10.9	32.8	167.3	Jun 16
Kelby	40.8	46.8	60.0	9.7	14.8	32.8	167.7	Jun 16
Kuntz	53.1	56.2	60.9	10.2	11.3	33.3	169.7	Jun 18
McNeal	55.8	58.1	61.1	10.2	11.3	34.2	170.3	Jun 19
Oneal	58.2	63.6*	62.6	10.5	11.9	34.8	169.3	Jun 18
Outlook	54.9	60.4*	60.4	10.0	11.4	35.1	172.0	Jun 21
Reeder	54.9	59.8	61.8	10.2	11.5	34.2	170.0	Jun 19
Superb	46.3	54.5	60.2	10.0	12.2	36.9	170.7	Jun 19
Traverse	55.6	58.2	58.1	9.9	9.9	37.8	168.3	Jun 17
Vida	64.4**	66.2**	59.7	10.3	11.5	32.8	170.0	Jun 19
Volt	48.1	56.2	62.2	10.3	11.6	32.6	169.0	Jun 18
<u>Experimental</u>								
MT0414	51.6		61.3	10.0	12.3	36.0	170.0	Jun 19
<u>Blends</u>								
Choteau/Conan	57.9		61.5	10.0	12.7	36.8	168.7	Jun 17
Choteau/Corbin	47.2		60.3	10.0	12.9	33.4	169.0	Jun 18
Choteau/Vida	60.4*		60.6	10.2	12.1	35.7	169.7	Jun 18
Average	53.3	58.0	60.7	10.1	12.1	35.0	169.4	Jun 18
PLSD (p=0.05)	5.3	6.2	0.8	0.2	1.3	1.9	1.0	
CV%	6.1	8.8	0.9	1.2	6.0	3.2	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).

Huntley Dryland Spring Wheat (Exp. 099908)

Planted:	March 20, 2009
Harvested:	August 13, 2009
Fertility:	30-0-0, preplant, February 11, 2009
Herbicide:	Huskie 11 oz/a + Axial XL 16.4 oz/a + R-11 4 oz/a +AMS 1 lb/ac, May 11, 2009
Insecticide:	none applied
Previous Crop:	chemical fallow
Precipitation:	8.96 inches

Table 4. Performance of 25 spring wheat cultivars and blends tested under no-till, dryland conditions near Broadview, Montana during 2009. Cultivars listed alphabetically. (Exp. 099995).

Cultivar	1/ Grain Yield		Test Weight	Grain Moisture	2/ Grain Protein		Plant Height
	2009	2008-09			%	%	
	----- bu/a -----		lb/bu	%	%	inches	
<u>Commercial</u>							
AC Lillian	28.7	25.3	57.5	8.9	14.3	31.4	
AP604 CL	30.3		60.2	9.0	14.6	28.2	
Choteau	32.0	26.8	58.8	8.8	14.6	25.5	
Conan	30.9	26.4	59.5	9.2	15.1	26.4	
Corbin	31.3	28.3	59.1	9.2	14.4	26.3	
Fortuna	26.7	24.4	59.0	9.1	14.7	33.9	
Freyr	27.6	22.9	60.7	9.5	13.4	27.7	
Granger	25.3	21.9	59.7	9.3	14.0	31.2	
Hank	29.2	23.1	59.6	9.2	13.6	25.2	
Jedd	31.1	26.9	59.9	9.3	13.2	22.8	
Jerome	28.6	21.1	59.2	9.1	13.7	25.3	
Kelby	24.6	21.8	60.4	9.2	14.9	23.7	
Kuntz	28.0	19.8	59.8	9.3	11.8	25.8	
McNeal	29.2	24.2	58.7	8.9	14.8	27.8	
Oneal	32.8	25.8	61.1	9.8	14.1	26.6	
Outlook	29.7	26.1	58.0	8.8	14.0	28.3	
Reeder	31.3	26.4	59.7	9.0	13.9	26.5	
Superb	31.7	23.2	57.5	8.8	15.1	29.2	
Traverse	28.5	24.0	56.7	8.4	14.0	30.4	
Vida	33.0	27.4	57.9	9.1	13.2	24.6	
Volt	26.8	21.5	60.4	9.4	13.6	26.5	
<u>Experimental</u>							
MT0414	27.2		58.6	9.0	14.4	28.6	
<u>Blends</u>							
Choteau-Conan	31.6		58.9	9.0	14.2	26.9	
Choteau-Corbin	29.6		59.1	9.0	14.8	27.0	
Choteau-Vida	37.2**		58.2	9.1	13.7	26.7	
Average	29.7	24.4	59.1	9.1	14.1	27.3	
PLSD (p=0.05)	3.2	ns	1.2	0.3	0.9	2.1	
CV%	6.0	17.3	1.1	1.8	3.7	4.7	

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.

** 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. 099995)

Planted:	April 23, 2009
Harvested:	August 27, 2009
Fertility:	11-52-00, 100 lb/a in-furrow at planting
Herbicide:	Roundup RT3, 16 oz/a, May 1, 2009
Insecticide:	none applied
Previous Crop:	summer fallow
Precipitation:	n/a

Table 5. Performance of 25 spring wheat cultivars and blends tested under conventional dryland conditions near Molt, Montana during 2009. Cultivars listed alphabetically. (Exp. 099994).

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain Protein	Plant Height
	2009	2008-09	2007-09			%	
	bushels/acre			lb/bu	%	%	inches
<u>Commercial</u>							
AC Lillian	22.6	21.0*		57.9	11.7	15.0	29.0
AP604 CL	27.3*			61.9	12.3	16.0	27.8
Choteau	26.2	17.9	13.9	59.9	12.0	15.2	26.3
Conan	25.1	20.2	16.9	59.5	12.0	17.4	24.4
Corbin	26.5	19.8	16.3	58.7	11.9	16.3	25.2
Fortuna	23.3	20.1	16.8	60.0	12.1	16.2	29.4
Freyr	25.2	20.6	18.6*	60.0	12.0	15.9	27.2
Granger	24.4	20.7*	18.7*	59.0	12.1	15.5	27.8
Hank	28.6*	22.3*	20.8*	58.7	11.9	15.8	25.3
Jedd	30.3*	21.8*		60.8	12.2	15.1	23.4
Jerome	22.4	18.6	17.2*	57.2	12.2	16.0	24.2
Kelby	22.3	16.9		60.1	12.1	14.9	22.9
Kuntz	23.5	18.9		60.5	12.0	15.9	23.7
McNeal	24.4	18.4	17.8*	58.9	11.8	15.7	27.0
Oneal	29.4*	24.9**		60.0	12.3	15.2	27.0
Outlook	26.0	23.5*	21.1**	59.3	12.0	15.9	26.2
Reeder	26.8*	23.2*	20.3*	60.4	11.7	17.3	26.3
Superb	24.3	22.8*		60.2	12.1	15.8	27.1
Traverse	24.9	22.2*	18.1*	57.9	11.7	16.7	28.6
Vida	30.9**	23.0*	20.5*	59.5	12.1	16.6	26.2
Volt	27.0*	21.9*		61.3	12.1	15.6	24.9
<u>Experimental</u>							
MT0414	23.0			60.5	12.0	15.5	25.4
<u>Blends</u>							
Choteau-Conan	28.3*			60.4	11.8	16.1	26.8
Choteau-Corbin	24.7			61.3	12.1	16.4	24.1
Choteau-Vida	30.8*			60.1	12.2	15.8	25.5
Average	25.9	20.9	18.2	59.8	12.0	15.9	26.1
PLSD (p=0.05)	4.1	4.2	3.9	ns	ns	ns	1.6
CV%	8.6	16.4	22.3	2.2	1.7	6.1	3.5

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.

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)

Planted: April 22, 2009
 Harvested: August 20, 2009
 Fertility: 11-52-00, 50 lb/a in-furrow at planting, 45-0-0, 67 lb/a, May 6, 2009
 Herbicide: none applied
 Insecticide: none applied
 Previous Crop: spring barley
 Precipitation: n/a

Table 6. Performance of 25 spring wheat cultivars and blends tested under irrigation near Huntley, Montana during 2009. Cultivars listed alphabetically. (Exp. 099909).

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain Protein		Plant Height	3/ Lodging	Heading Date	
	2009	2008-09	2007-09			lb/bu	%			%	inches
	----- bushels per acre -----										
<u>Commercial</u>											
AC Lillian	88.9	91.4		59.5	12.5	14.2	42.6	3.0	174.7	Jun 22	
AP604 CL	106.2*			61.7	13.0	11.7	38.3	0.0	168.3	Jun 16	
Choteau	107.7*	109.8*	103.7*	62.0	13.0	11.8	36.4	0.0	171.3	Jun 19	
Conan	92.9	95.9	92.5	60.2	14.5	13.0	33.8	0.0	169.7	Jun 17	
Corbin	100.2*	101.8	98.9	61.4	13.2	12.3	36.3	0.0	169.3	Jun 17	
Fortuna	84.0	94.1	85.9	60.8	13.0	13.8	43.5	6.3	170.7	Jun 18	
Freyr	102.0*	101.9	98.0	61.1	14.2	12.7	38.5	0.0	170.3	Jun 18	
Granger	99.1	96.8	91.5	60.9	12.8	12.8	41.1	4.3	169.0	Jun 17	
Hank	107.2*	103.3	101.5*	60.4	12.5	11.6	34.5	0.0	169.7	Jun 17	
Jedd	101.4*	111.1*		61.5	13.5	12.2	32.2	0.0	169.7	Jun 17	
Jerome	110.4**	120.9**	113.7**	60.9	12.9	11.8	35.9	0.3	168.7	Jun 16	
Kelby	85.0	91.7		61.1	12.9	14.0	33.6	2.0	168.3	Jun 16	
Kuntz	96.3	94.2		60.9	12.8	11.8	34.8	0.0	170.7	Jun 18	
McNeal	75.8	80.3	81.3	61.3	12.4	12.3	36.7	0.0	171.7	Jun 19	
Oneal	108.4*	106.6*		61.7	13.6	11.7	36.4	0.0	171.3	Jun 19	
Outlook	101.7*	94.1	91.8	60.4	13.9	12.2	36.6	0.0	173.0	Jun 21	
Reeder	102.7*	103.1	94.0	61.7	13.5	12.0	38.5	0.0	170.7	Jun 18	
Superb	99.3	97.3		60.5	13.4	12.9	39.3	0.0	170.3	Jun 18	
Traverse	106.9*	100.9	95.7	59.7	13.1	11.2	40.7	0.0	168.7	Jun 16	
Vida	105.3*	100.2	99.9	59.9	14.3	12.6	37.9	0.7	171.7	Jun 19	
Volt	105.7*	106.0*		63.1	13.4	11.3	34.6	0.0	173.3	Jun 21	
<u>Experimental</u>											
MT0414	101.6*			62.3	12.5	11.7	40.5	0.0	170.0	Jun 18	
<u>Blends</u>											
Choteau-Conan	102.0*			61.2	13.8	13.1	38.6	0.0	170.3	Jun 18	
Choteau-Corbin	93.5			59.6	14.8	13.2	33.9	0.0	169.3	Jun 17	
Choteau-Vida	105.1*			60.1	13.7	11.8	37.2	0.0	169.0	Jun 17	
Average	99.6	100.1	96.0	60.9	13.3	12.4	37.3	0.7	170.4	Jun 18	
PLSD (p=0.05)	10.7	15.6	13.0	0.8	0.7	1.4	2.0	1.3	0.9		
CV%	6.5	12.9	13.9	0.8	3.2	6.8	3.2	109.3	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).

Table 5 Continued.

Huntley Irrigated Spring Wheat (Exp. 099909)

Planted:	April 8, 2009
Harvested:	August 14, 2009
Fertility:	200-40-20, February 11, 2009
Herbicide:	Huskie 11 oz/a + Axial XL 16.4 oz/a + R-11 4 oz/a +AMS 1 lb/ac, May 11, 2009
Insecticide:	none
Previous Crop:	barley
Irrigation:	profile flooded June 2 and July 1, 2009
Precipitation:	8.13 inches

Table 7. Performance of 25 spring wheat cultivars and blends tested under irrigation near Hysham during 2009. Cultivars listed alphabetically. (Exp. 099996).

Cultivar	1/ Grain Yield		Test Weight	Grain Moisture	2/ Grain Protein		Plant Height	Lodging
	2009	2008-09			%	%		
	- - - - - bu/a - - - - -		lb/bu	%	%	inches	0-9	
<u>Commercial</u>								
AC Lillian	70.4	66.1	56.7	12.8	15.8	43.0	8.0	
AP604 CL	101.1		59.0	12.7	13.2	41.5	4.3	
Choteau	102.9	111.4*	58.3	13.0	13.1	38.7	6.3	
Conan	90.1	95.2	59.3	13.4	13.3	38.0	4.3	
Corbin	76.9	85.1	58.6	12.8	14.5	40.2	7.0	
Fortuna	76.7	80.7	57.2	13.0	14.2	41.9	8.3	
Freyr	80.7	93.2	57.2	13.3	14.9	37.9	7.3	
Granger	72.8	83.0	56.0	12.7	14.7	39.9	8.0	
Hank	119.8*	117.4*	59.3	13.3	12.2	37.5	0.0	
Jedd	107.6*	107.6	61.1	13.5	12.8	34.0	0.7	
Jerome	133.1**	129.0**	59.6	13.4	12.0	38.3	1.0	
Kelby	94.3	99.5	57.7	12.9	14.4	35.2	4.0	
Kuntz	107.2*	108.2	59.6	13.4	11.8	37.0	0.0	
McNeal	112.5*	110.4	60.1	13.2	12.5	39.3	4.3	
Oneal	100.6	112.8*	58.8	13.1	13.4	39.4	7.3	
Outlook	98.6	98.7	58.2	13.0	13.4	39.3	6.0	
Reeder	74.0	87.2	58.5	12.8	14.8	39.1	6.0	
Superb	80.7	95.3	57.1	12.7	14.6	39.1	5.3	
Traverse	104.6*	106.4	56.1	12.8	12.4	40.9	4.7	
Vida	79.2	85.5	57.2	13.2	14.8	36.3	7.3	
Volt	107.0*	117.4*	60.1	13.2	12.0	37.2	1.0	
<u>Experimental</u>								
MT0414	121.9*		60.1	13.3	12.7	42.9	1.7	
<u>Blends</u>								
Choteau-Conan	96.3		58.6	13.0	14.4	40.6	4.7	
Choteau-Corbin	94.0		59.4	13.2	13.3	38.7	4.7	
Choteau-Vida	80.8		56.8	13.1	14.6	37.2	6.7	
Average	95.4	99.5	58.4	13.1	13.6	38.9	4.8	
PLSD (p=0.05)	29.6	18.0	1.9	ns	1.7	3.6	3.8	
CV%	18.9	15.0	2.0	2.7	7.5	5.7	47.6	

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.

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. 099996)

Planted:	March 27, 2009
Harvested:	August 18, 2009
Fertility:	98 lb N/a, fall 2008; 100 lb N/a, May 6, 2009
Herbicide:	Bronate Advanced, 14 oz/a + Starane Ultra, 5 oz/a +Axial, 8.2 oz/a, POST
Previous Crop:	sugar beets
Irrigation:	flood
Precipitation:	n/a

Table 8. Performance of 25 spring wheat cultivars and blends tested under irrigation near Fromberg, Montana during 2009. Cultivars listed alphabetically. (Exp. 099997).

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain	Plant Height	Lodging
	2009	2008-09	2007-09			Protein		
	----- bushels/acre -----			lb/bu	%	%	inches	0-9
<u>Commercial</u>								
AC Lillian	100.7	88.6		60.6	13.1	12.2	43.4	0.0
AP604 CL	106.4			62.7	14.0	11.7	38.7	0.0
Choteau	112.6	104.3*	106.9*	61.7	14.2	11.9	36.3	0.0
Conan	105.4	94.4	94.1	59.8	15.9	12.5	34.3	0.0
Corbin	104.6	99.9	100.5	61.2	14.8	12.4	37.6	0.0
Fortuna	101.2	94.0	95.0	62.2	13.5	12.5	45.6	6.3
Freyr	118.9	108.2*	108.6*	60.9	15.5	11.5	40.3	0.0
Granger	117.0	106.1*	104.2	62.0	13.8	11.8	44.6	0.7
Hank	121.1	112.1*	110.8*	61.1	14.0	10.8	35.2	0.0
Jedd	113.2	103.2*		61.7	14.8	11.2	31.5	0.0
Jerome	117.3	109.0*	108.1*	61.4	13.7	10.5	35.4	0.0
Kelby	92.8	98.1		61.7	13.4	14.1	33.9	0.0
Kuntz	113.9	105.1*		61.6	13.5	10.6	34.7	0.0
McNeal	118.8	100.4	101.8	62.4	14.0	11.0	38.7	0.0
Oneal	130.3**	113.3*		61.4	16.2	11.2	39.1	0.0
Outlook	121.7	114.8*	111.8**	61.1	14.1	11.3	40.4	0.0
Reeder	116.5	106.5*	106.6*	61.3	15.0	11.3	40.5	0.0
Superb	113.2	105.5*		61.1	14.2	11.4	39.5	0.0
Traverse	125.0*	113.5*	110.3*	59.4	14.0	10.3	41.1	0.0
Vida	118.1	111.7*	110.4*	59.4	15.3	11.5	38.9	0.0
Volt	120.3	115.1**		63.1	13.7	10.5	35.6	0.0
<u>Experimental</u>								
MT0414	112.7			62.9	13.5	10.0	40.0	0.0
<u>Blends</u>								
Choteau-Conan	113.5			61.2	14.9	11.7	39.1	0.0
Choteau-Corbin	99.9			60.2	15.5	12.1	34.6	0.0
Choteau-Vida	111.4			59.4	14.9	11.8	37.7	0.0
Average	113.1	105.2	105.3	61.3	14.4	11.5	38.3	0.3
PLSD (p=0.05)	6.7	14.2	7.5	1.0	0.9	1.0	1.5	0.4
CV%	3.6	11.2	7.3	1.0	4.0	5.1	2.3	86.8

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. 099997)

Planted:	April 8, 2009
Harvested:	August 20, 2009
Fertility:	40 N – 60 P ₂ O ₅ , preplant; 100 lb N/a, May 6, 2009
Herbicide:	n/a
Previous Crop:	sugar beets
Irrigation:	flood
Precipitation:	n/a

Table 9. Grain yield^{1/} of 25 spring wheat cultivars and blends tested at six locations in south central Montana during 2009. Varieties listed by declining six-location average yield.

	Dryland				Irrigated				Six Location Average
	Huntley	Molt	Broadview	Ave.	Huntley	Hysham	Fromberg	Ave.	
	----- bushels/acre -----								
Jerome	60.4*	22.4	28.6	37.6	110.4**	133.1**	117.3	120.3**	78.9**
Hank	58.9	28.6*	29.2	38.9*	107.2*	119.8*	121.1	116.0*	77.5*
Oneal	58.2	29.4*	32.8	40.0*	108.4*	100.6	130.3**	113.1*	76.6*
Traverse	55.6	24.9	28.5	36.0	106.9*	104.6*	125.0*	112.2*	74.1*
MT0414	51.6	23.0	27.2	34.3	101.6*	121.9*	112.7	112.0*	73.2*
Jedd	54.2	30.3*	31.1	37.8	101.4*	107.6*	113.2	107.4*	72.6*
Volt	48.1	27.0*	26.8	34.0	105.7*	107.0*	120.3	111.0*	72.5*
Outlook	54.9	26.0	29.7	37.3	101.7*	98.6	121.7	107.3*	72.3*
Choteau	55.2	26.2	32.0	36.3	107.7*	102.9	112.6	107.8*	72.0*
Choteau-Conan	57.9	28.3*	31.6	39.9*	102.0*	96.3	113.5	104.0*	71.9*
AP604 CL	56.0	27.3*	30.3	38.8*	106.2*	101.1	106.4	104.5*	71.7*
Vida	64.4**	30.9**	33.0	41.9*	105.3*	79.2	118.1	100.9	71.4*
Choteau-Vida	60.4*	30.8*	37.2**	43.6**	105.1*	80.8	111.4	99.1	71.3*
Kuntz	53.1	23.5	28.0	34.0	96.3	107.2*	113.9	105.8*	69.9*
McNeal	55.8	24.4	29.2	35.4	75.8	112.5*	118.8	102.4	68.9*
Reeder	54.9	26.8*	31.3	38.4*	102.7*	74.0	116.5	97.7	68.0
Freyr	52.9	25.2	27.6	34.8	102.0*	80.7	118.9	100.5	67.7
Superb	46.3	24.3	31.7	35.6	99.3	80.7	113.2	97.7	66.7
Granger	55.5	24.4	25.3	35.5	99.1	72.8	117.0	96.3	65.9
Corbin	54.7	26.5	31.3	37.3	100.2*	76.9	104.6	93.9	65.6
Choteau-Corbin	47.2	24.7	29.6	33.8	93.5	94.0	99.9	95.8	64.8
Conan	41.2	25.1	30.9	32.2	92.9	90.1	105.4	96.1	64.1
AC Lillian	47.1	22.6	28.7	33.3	88.9	70.4	100.7	86.7	60.0
Kelby	40.8	22.3	24.6	29.1	85.0	94.3	92.8	90.7	59.9
Fortuna	46.7	23.3	26.7	32.2	84.0	76.7	101.2	87.3	59.7
Average	53.3	25.9	29.7	36.3	99.6	95.4	113.1	102.7	69.5
PLSD (p=0.05)	5.3	4.1	3.2	5.2	10.7	29.6	6.7	16.7	9.2
CV%	6.1	8.6	6.0	15.2	6.5	18.9	3.6	17.1	20.1

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 blends tested under both dryland and irrigated conditions at six locations in south central Montana during 2009. Cultivars listed alphabetically.

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain	Plant Height
	2009	2008-09	2007-09			Protein	
	----- bushels/acre -----			lb/bu	%	%	inches
<u>Commercial</u>							
AC Lillian	60.0	57.4		58.6	11.5	14.0	38.0
AP604 CL	71.7*			61.2	11.9	13.1	35.3
Choteau	72.0*	71.4*	71.1*	59.9	11.8	13.3	32.6
Conan	64.1	63.7	63.6	59.8	12.5	14.1	31.6
Corbin	65.6	65.5	66.0	60.0	12.0	13.8	33.3
Fortuna	59.7	60.9	60.5	60.0	11.8	13.8	39.4
Freyr	67.7	67.7	68.5	60.1	12.4	13.5	34.5
Granger	65.9	64.7	64.8	59.8	11.8	13.5	37.6
Hank	77.5*	73.7*	73.9*	59.7	11.8	12.6	31.7
Jedd	72.6*	72.0*		61.2	12.3	12.8	28.7
Jerome	78.9**	77.1**	76.3**	60.0	11.9	12.5	32.0
Kelby	59.9	62.5		60.3	11.7	14.5	30.3
Kuntz	69.9*	67.1		60.5	11.9	12.3	31.5
McNeal	68.9*	65.3	65.9	60.3	11.7	13.0	33.9
Oneal	76.6*	74.5*		61.0	12.6	13.0	33.9
Outlook	72.3*	69.6	69.7	59.6	11.9	13.0	34.4
Reeder	68.0	67.7	67.3	60.6	12.1	13.4	34.2
Superb	66.7	66.4		59.6	11.9	13.7	35.3
Traverse	74.1*	70.8*	69.9	57.8	11.6	12.5	36.6
Vida	71.4*	69.0	70.1	58.9	12.4	13.3	32.8
Volt	72.5*	73.0*		61.7	12.0	12.4	31.9
<u>Experimental</u>							
MT0414	73.2*			61.0	11.7	12.7	35.6
<u>Blends</u>							
Choteau-Conan	71.9*			60.3	12.1	13.7	34.8
Choteau-Corbin	64.8			59.9	12.4	13.8	31.9
Choteau-Vida	71.3*			59.3	12.2	13.2	33.4
Average	69.5	68.0	68.3	60.0	12.0	13.3	33.8
PLSD (p=0.05)	9.2	6.5	5.4	0.9	0.5	0.8	1.3
CV%	20.1	20.4	19.1	2.4	5.8	9.3	5.9
Location Years	6	12	16	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 blends tested under irrigated conditions only in south central Montana during 2009. Cultivars listed alphabetically.

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain Protein		Plant Height	3/ Lodging
	2009	2008-09	2007-09			%	%		
	-----	bushels/acre	-----	lb/bu	%	%	inches	0-9	
<u>Commercial</u>									
AC Lillian	86.7	82.0		58.9	12.8	14.1	43.0	3.7	
AP604 CL	104.5*			61.1	13.2	12.2	39.5	1.4	
Choteau	107.8*	108.5	106.9*	60.7	13.4	12.3	37.1	2.1	
Conan	96.1	95.2	93.8	59.8	14.6	12.9	35.4	1.4	
Corbin	93.9	95.6	96.0	60.4	13.6	13.1	38.0	2.3	
Fortuna	87.3	89.6	88.0	60.1	13.2	13.5	43.7	7.0	
Freyr	100.5	101.1	100.8	59.8	14.3	13.0	38.9	2.4	
Granger	96.3	95.3	94.1	59.6	13.1	13.1	41.9	4.3	
Hank	116.0*	110.9*	108.9*	60.3	13.3	11.5	35.7	0.0	
Jedd	107.4*	107.3		61.4	13.9	12.1	32.5	0.2	
Jerome	120.3**	119.6**	115.4**	60.6	13.3	11.4	36.5	0.4	
Kelby	90.7	96.4		60.2	13.0	14.1	34.2	2.0	
Kuntz	105.8*	102.5		60.7	13.2	11.4	35.5	0.0	
McNeal	102.4	97.0	96.2	61.3	13.2	11.9	38.2	1.4	
Oneal	113.1*	110.9*		60.6	14.3	12.1	38.3	2.4	
Outlook	107.3*	102.5	101.1	59.9	13.6	12.3	38.8	2.0	
Reeder	97.7	98.9	97.0	60.5	13.8	12.7	39.3	2.0	
Superb	97.7	99.4		59.6	13.5	13.0	39.3	1.8	
Traverse	112.2*	106.9	103.8	58.4	13.3	11.3	40.9	1.6	
Vida	100.9	99.1	100.3	58.8	14.3	13.0	37.7	2.7	
Volt	111.0*	112.8*		62.1	13.5	11.2	35.8	0.3	
<u>Experimental</u>									
MT0414	112.0*			61.7	13.1	11.5	41.1	0.6	
<u>Blends</u>									
Choteau-Conan	104.0*			60.3	13.9	13.0	39.5	1.6	
Choteau-Corbin	95.8			59.7	14.5	12.9	35.7	1.6	
Choteau-Vida	99.1			58.8	13.9	12.7	37.4	2.2	
Average	102.7	101.6	100.2	60.2	13.6	12.5	38.2	1.9	
PLSD (p=0.05)	16.7	10.9	8.9	1.2	0.8	0.9	2.1	2.5	
CV%	17.1	16.3	15.5	2.2	6.0	7.8	5.9	136.2	
Location Years	3	6	8	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 blends tested under dryland conditions only in south central Montana during 2009. Cultivars listed alphabetically.

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain	Plant Height
	2009	2008-09	2007-09			Protein	
	bushels/acre			lb/bu	%	%	inches
<u>Commercial</u>							
AC Lillian	33.3	32.8		58.3	10.2	13.9	33.0
AP604 CL	38.8*			61.3	10.5	14.0	31.2
Choteau	36.3	34.3	30.3	59.2	10.3	14.3	28.0
Conan	32.2	32.3	29.2	59.8	10.4	15.3	27.8
Corbin	37.3	35.3*	31.6	59.5	10.4	14.4	28.5
Fortuna	32.2	32.3	29.1	59.9	10.5	14.1	35.1
Freyr	34.8	34.3	31.5	60.5	10.5	13.9	30.1
Granger	35.5	34.1	31.3	59.9	10.5	13.8	33.4
Hank	38.9*	36.5*	33.8*	59.2	10.4	13.6	27.6
Jedd	37.8	36.6*		61.0	10.6	13.5	24.9
Jerome	37.6	34.5	31.6	59.3	10.5	13.5	27.5
Kelby	29.1	28.5		60.4	10.4	14.9	26.4
Kuntz	34.0	31.6		60.2	10.5	13.2	27.6
McNeal	35.4	33.5	31.1	59.3	10.3	14.0	29.6
Oneal	40.0*	38.1*		61.3	10.9	13.8	29.5
Outlook	37.3	36.7*	33.8*	59.3	10.2	13.7	29.9
Reeder	38.4*	36.5*	33.3*	60.8	10.3	14.2	29.1
Superb	35.6	33.5		59.6	10.3	14.3	31.3
Traverse	36.0	34.8	31.2	57.3	10.0	13.7	32.3
Vida	41.9*	38.9**	35.6**	59.0	10.5	13.7	27.8
Volt	34.0	33.2		61.3	10.6	13.6	28.0
<u>Experimental</u>							
MT0414	34.3			60.2	10.3	13.9	30.1
<u>Blends</u>							
Choteau-Conan	39.9*			60.3	10.3	14.3	30.2
Choteau-Corbin	33.8			60.1	10.4	14.7	28.1
Choteau-Vida	43.6**			59.9	10.5	13.8	29.4
Average	36.3	34.4	31.8	59.9	10.4	14.0	29.5
PLSD (p=0.05)	5.2	3.7	3.3	1.3	0.3	ns	1.7
CV%	15.2	16.4	17.1	2.3	2.6	9.7	5.9
Location Years	3	6	7	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).