



## 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:** 2009 Off-Station Winter Wheat Variety Performance Trials in South Central Montana. This research is partially supported by Montana farmers through the Montana Wheat and Barley Committee.

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**OBJECTIVES:** To provide wheat growers in south central Montana with a reliable, unbiased and up-to-date source of information that will permit valid comparisons among improved winter wheat varieties. This information should help winter wheat producers in south central Montana select varieties best suited to their particular area and growing conditions.

**METHODS:** The 2009 off-station winter wheat trials were established under dryland conditions near Molt under conventional summer fallow conditions; near Forsyth, Hardin, Lodge Grass and Rapelje under no-till, chemical fallow conditions; and under no-till, irrigated conditions at Huntley (Fig. 1). Each dryland trial contained 25 winter wheat cultivars (18 commercial, 7 experimental), and was planted using a partially-balanced lattice design with three replications. The irrigated trial near Huntley contained 28 winter wheat cultivars (19 commercial, 9 experimental) arranged in a randomized complete block design replicated three times. All entries were seeded at approximately 1 million seeds per acre under dryland conditions (~60 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 58 to 98 pounds per acre for the dryland sites and from 87 to 147 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 harvested test plot were trimmed 36 inches and harvested using a plot combine. Information pertaining to the traits and characteristics of the 28 winter wheat entries are provided in Table 2.

Recorded grain yields were adjusted to 13% grain moisture content, and are reported in bushels per acre based on a 60 pound standard bushel weight. Two year (2008-09) and three year (2007-09) yield averages are provided for cultivars tested during previous years. Test weight (pounds per bushel) and grain

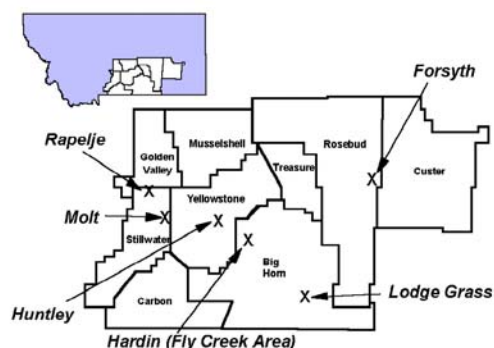


Figure 1. 2009 off-station winter wheat trial locations in south central Montana.

moisture content (percent) were obtained for each plot using a Dickey-john™ GAC 2100 grain analyzer. Grain protein content (percent) was determined by near-infrared reflectance for each harvested sample, and 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 of all cultivars was noted at the irrigated Huntley location during 2009, and recorded on a 0 to 9 scale representing no lodging to all stems lying flat on the ground, respectively. Heading also was noted at Huntley when 50% of the heads in a plot had extended above the flag leaf collar. Heading dates were recorded in Julian days (number of days from January 1) for statistical purposes. Corresponding calendar dates also are presented. Information pertaining to the specific cultural management of each study site is listed at the bottom of their respective data table (Tables 3 through 8).

## **RESULTS:**

Surface soil moisture conditions were good to excellent at all six of the winter wheat test locations planted in the fall of 2008. The irrigated site near Huntley was pre-irrigated in late August to saturate the soil profile before the trial was planted. Average to above average precipitation occurred throughout the region during September and October. Short periods of extremely cold temperatures were experienced during December, but temperatures were warmer than normal for most of the winter months. Most of the test sites were dry over-winter, with very little snow accumulating. Spring rains produced above average precipitation levels during most of the early spring growth period. Although conditions were dry in May and June, cooler than normal temperatures during June and July delayed crop development helping to avoid drought-related stresses in the crop. 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. Soil moisture reserves remained adequate throughout July for winter wheat to produce good yields at most sites. All sites were harvested in August of 2009. Overall, winter wheat yields were average to above average. Test weight values were average to below average. Grain protein content fluctuated greatly from site-to-site in 2009, but on average was 2 percentage points higher than the low grain protein levels measured in the trials harvested the previous year.

Average winter wheat yield under irrigated condition in Huntley during 2009 was 91 bu/a (Table 3), nearly 40 less bushels per acre compared to irrigated winter wheat yield for this site the previous year. Lodging was severe in most entries. Only the experimental entry 'UT9743-42', a short-statured wheat developed exclusively for production under irrigation, showed no sign of lodging under these conditions. Yields ranged from 67 bu/a for 'NuSky' to 116 bu/a for the experimental line 'MT0495'. 'Norris' was the highest yielding commercial entry, averaging 108 bu/a. Test weight values were light under irrigated conditions at

Huntley in 2009, averaging only 58.3 lb/bu. Only three of the 28 entries possessed test weight values heavier than 60 lb/bu. Grain protein content averaged 13.2 percent and ranged from 11.9 for 'Decade' to 14.7 percent for 'Bynum'. Two-year average yield for winter wheat varieties tested during 2008 and 2009 averaged 112 bu/a. Three-year average yield for winter wheat varieties tested during 2007 to 2009 averaged 110 bu/a with the experimental line MT0495 producing the highest average grain yield at 121 bu/a. 'Promontory' and 'Moreland' have been the highest yielding commercial entries the past three years, averaging 119 bu/a. Six other commercial entries ('CDC Falcon', 'Hyalite', 'Jagalene', 'Norris', 'Pryor' and 'Yellowstone') have produced yields statistically equal to the yield of MT0495 under irrigation at this site for the past three years.

Table 1. Adjusted seeding rates used to establish 28 commercial and experimental winter wheat cultivars tested at 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>						
Accipiter	25.1	18,087	40.3	58	60.5	87
Bynum	30.9	14,682	49.7	71	74.5	107
Carter	26.6	17,089	42.7	61	64.0	92
CDC Falcon	27.7	16,398	44.5	64	66.7	96
Decade (MT0552)	29.5	15,391	47.4	68	71.1	102
Genou	28.7	15,817	46.1	66	69.2	99
Hyalite	28.8	15,781	46.2	66	69.3	99
Jagalene	35.8	12,676	57.6	83	86.3	124
Jerry	42.4	10,696	68.2	98	102.3	147
Ledger	32.6	13,920	52.4	75	78.6	113
Moreland	33.2	13,656	-	-	80.1	115
Neeley	31.3	14,528	50.2	72	75.3	108
Norris	31.8	14,283	51.1	73	76.6	110
NuSky	28.4	15,990	45.6	65	68.4	98
Promontory	33.3	13,620	53.6	77	80.4	115
Pryor	29.4	15,463	47.2	68	70.8	102
Rampart	26.6	17,070	42.7	61	64.1	92
Rocky	30.1	15,100	48.3	69	72.5	104
Wahoo	33.7	13,457	54.2	78	81.3	117
Yellowstone	28.7	15,826	46.1	66	69.1	99
<u>Experimental</u>						
IDO621	39.7	11,432	-	-	95.7	137
MT0495	30.9	14,691	49.7	71	74.5	107
MT06103	40.2	11,305	64.5	93	96.8	139
MTS0531	32.9	13,820	52.8	76	79.2	114
MTS0532	32.6	13,920	52.4	75	78.6	113
MTS0713	32.8	13,838	52.7	76	79.1	113
UT9325-55	32.5	13,974	52.2	75	78.3	112
UT9743-42	33.2	13,674	-	-	80.0	115

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 1 million seeds per acre on a mass basis.

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

Average yield under dryland conditions at Rapelje in 2009 was 62 bu/a (Table 4), about 10 bushels per acre less than winter wheat yields observed at this site in 2008. Yields ranged from 50 bu/a for 'CDC Falcon' to 85 bu/a for 'Pryor'. The highest yielding experimental entry was 'MT06103' at 75 bu/a. Only three other entries including, 'Norris', 'Yellowstone' and Decade, produced yields statistically equal with that of Pryor. Average test weight was 61.7 lb/bu, with all entries producing test weights heavier than 60 lb/bu. Grain protein content remained low at this location in 2009, averaging 10.4 percent. Grain protein ranged from

8.6 percent for Yellowstone to 12.1 percent for 'Bynum'. Two-year average yield for winter wheat varieties tested at Rapelje during 2008 and 2009 averaged 67 bu/a. Three-year average yield from 2007 through 2009 averaged 69 bu/a. Decade averaged nearly 80 bu/a as the top yielding entry for the past two years. Yellowstone has averaged 80 bu/a as the highest yielding entry tested at Rapelje the past three years. The commercial entries 'Neeley', Norris, 'NuSky', 'Promontory', Pryor and 'Wahoo' have produced yields ranging from 70 to 78 bu/a, equal to the yield produced by Yellowstone winter wheat the past three years at this location.

Average yield of the 25 winter wheat cultivars tested at Forsyth in 2009 was 37 bu/a (Table 5), 10 bushels per acre less than winter wheat entries harvested at Forsyth in 2008. No statistical difference in yield was observed between the 25 entries harvested at Forsyth. Yields ranged from 29 bu/a for the hard white wheat entry NuSky to 44 bu/a for Decade and the experimental line 'MT06103'. Wahoo was the highest yielding commercial hard red winter wheat in the trial, averaging 43 bu/a. Average test weight was 62.2 lb/bu, with all 25 entries possessing test weight values heavier than 60 lb/bu. Grain protein content remains low at this site, averaging only 9.0 percent and ranged from 8.0 for Pryor to 10.1 percent for 'Jerry'. Two year average yield for winter wheat varieties tested at Forsyth during 2008 and 2009 averaged 42 bu/a, with Wahoo averaging the highest two-year yield at 51 bu/a. Norris and Decade produced yields of 45 and 47 bu/a, respectively, equal to the yield produced by Wahoo winter wheat the past two years at this location. Three year average yield for winter wheat varieties tested at Forsyth from 2007 through 2009 also averaged 42 bu/a, with Wahoo averaging the highest three-year yield at 51 bu/a. Only Pryor and Yellowstone produced yields equal to the yield produced by Wahoo winter wheat the past three years at this location.

Agronomic performance of the winter wheat cultivars tested under dryland conditions near Lodge Grass during 2009 is presented in Table 6. Winter wheat grown in this region of south central Montana frequently suffers from the occurrence of dwarf bunt (*aka*, dwarf smut, TCK smut, *Tilletia controversa* Kuhn), but this disease was not evident during the 2009 season. Trampling injury from feral horses was evident at the Lodge Grass site, which impacted winter wheat stands. The Lodge Grass location resulted in an average winter wheat yield of 35 bu/a, 30 bu/a lower than average yields observed at this location in 2008. Winter wheat yields at Lodge Grass ranged from 15 bu/a for 'Carter' to 45 bu/a for the sawfly resistant line 'MTS0532'. The highest yielding commercial entry was 'Ledger', averaging 44 bu/a. Fourteen other entries produced yields from 34 to 43 bu/a, which were statistically equal to the yield of MTS0532. Average test weight was 58.9 lb/bu. Only 'Jagalene', Promontory and 'Rocky' possessed test weight values heavier than 60 lb/bu. Grain protein content at Lodge Grass averaged 13.9 percent, more than 5 percent points higher than the average grain protein content measured at this location in 2008. Grain protein content ranged from 12.5 percent for 'Accipiter' to 15.5 percent for 'Rampart'. No difference in yield was detected for winter wheat cultivars tested the past two or three years at the Lodge Grass site.

Agronomic performance of the winter wheat cultivars tested under dryland conditions near Hardin during 2009 is presented in Table 7. This location was not harvested in 2008 due to post-emergence herbicide injury resulting from a Roundup® application to a substantial portion of the trial. The Hardin location resulted in an average winter wheat yield of 66 bu/a. Winter wheat yields ranged from 51 bu/a for the sawfly resistant cultivar 'Genou' to 80 bu/a for Jagalene. Norris and Decade were the only commercial entries to produce a grain yield equal to that of Jagalene, both averaging 73 bu/a. The experimental lines 'MT0495', MT06103 and MTS0531 produced yields ranging from 72 to 76 bu/a, also equal to the yield Jagalene. Test weight values were light at this location in 2009, averaging only 57.2 lb/bu. None of the 25 entries possessed a test weight value heavier than 60 lb/bu. Conversely, grain protein content at Hardin was

excellent, averaging 15.9 percent. Grain protein content ranged from 13.9 percent for Norris to 18.0 percent for Neeley.

Average yield under dryland conditions at Molt in 2008 was 38 bu/a (Table 8), or about 20 bushels per acre less than the winter wheat yield observed at Molt in 2008. Winter wheat yields at Molt ranged from 28 bu/a for Jerry to 45 bu/a for the experimental sawfly resistant line MTS0532 and the commercial varieties Genou and Ledger. Average test weight was 60.1 lb/bu, with 15 of the 25 entries having a test weight value heavier than 60 lb/bu. Grain protein content averaged 10.2 percent, more than a full percent point higher than grain protein content observed the previous year. Two-year average yield for winter wheat varieties tested at Molt from 2008 to 2009 averaged 46 bu/a, but no differences in yield were observed between the 21 entries grown during this period of time. Three-year average yield for winter wheat varieties tested at Molt from 2007 to 2009 averaged 38 bu/a, with Pryor averaging 44 bu/a as the top yielding three-year entry. Genou, Ledger, MT0495, Neeley, Norris, NuSky, Promontory, Rocky, Wahoo and Yellowstone produced yields from 37 to 43 bu/a, equal to the yield produced by Pryor winter wheat the past three years at this location.

### **SUMMARY:**

Significant differences in yield among cultivars tested in 2009 were obtained under both dryland and irrigated conditions (Tables 9, 10 and 11). MT06103 produced the highest yield of 62 bu/a, averaged across all six of the test locations harvested in 2009 (Table 9). Norris was the highest yielding commercial (yielding slightly less than 62 bu/a) among the 25 entries tested at all six locations. Norris was also the highest yielding commercial entry tested under irrigation near Huntley in 2009 (Tables 3 and 9), averaging 108 bu/a.

Since 2007, experiments representing 17 location-years of testing have uniformly tested 16 cultivars at several dryland and irrigated sites in south central Montana (Table 10). Averaged across three years under both dryland and irrigated conditions, Pryor hard red winter wheat has been the highest yielding cultivar averaging 67 bu/a. Both Pryor and Wahoo have been the highest yielding cultivars tested over the past three years, averaging 57 bu/a, when comparing only dryland environments tested in south central Montana since 2007 (Table 11). Only Neeley and Norris have produced three year average yields, 53 and 51 bu/a, respectively, under dryland conditions equal to that of Pryor and Wahoo.

Table 2. Selected characteristics and traits of 29 commercial and experimental winter 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 Yes/No	4/ Maturity	5/ Coleoptile Length	Chaff Color	6/ Winter Survival 1-5	7/ Straw Strength	Solid Stem Type Yes/No	8/ Disease Resistance				9/ Quality		10/ Clearfield Type Yes/No	
											Leaf Rust	Stem Rust	Stripe Rust	Dwarf Bunt	Milling 1-5	Baking 1-5		
<u>Commercial</u>																		
Accipiter	CDC	2008	HRW	N	M-L	S	White	5	S	N	MS	MS	VS	S	2	3	N	
Bynum <sup>§</sup>	MSU	2006	HRW	Y	E	L	Brown	2	S	Y	MS	M	R	S	4	4	Y	
Carter	WestBred	2006	HRW	Y	M	S	White	3	S	Y	MR	MS	MR	S	4	4	N	
CDC Falcon <sup>§</sup>	CDC	1999	HRW	Y	M-L	M	White	4	MS	N	R	R	MS	S	3	3	N	
Decade	MSU	2010	HRW	Y	M	M	White	4	S	N	MS	R	R	S	3	4	N	
Genou	MSU	2004	HRW	Y	M	L	White	2	MS	Y	MR	S	MS	S	4	4	N	
Hyalite <sup>§</sup>	MSU	2006	HW	Y	E	S	White	3	S	N	S	R	S	S	3	3	Y	
Jagalene	AgriPro	2002	HRW	Y	E	M	White	2	S	N	MS	MR	R	S	3	3	N	
Jerry	NDSU	2001	HRW	N	M-L	M	White	5	M	N	-	R	MR	S	3	3	N	
Ledger	WestBred	2005	HRW	Y	E	M	White	2	W	Y	S	S	MR	S	4	3	N	
Moreland	UI	2002	HRW	Y	E	M	Brown	3	S	N	R	-	S	S	3	4	N	
Neeley	UI	1980	HRW	N	M	M	White	3	MS	N	MR	S	S	S	3	3	N	
Norris <sup>§</sup>	MSU	2005	HRW	Y	E	M	Brown	3	S	N	MS	S	MS	S	3	3	Y	
NuSky	MSU	2001	HW	N	M	S	White	4	M	N	S	R	VS	S	5	4	N	
Promontory	USU	1990	HRW	N	E	M	Brown	2	MS	N	S	S	MR	R	5	4	N	
Pryor	WestBred	2002	HRW	Y	M-L	M	White	3	S	N	S	S	S	S	3	3	N	
Rampart	MSU	1996	HRW	N	M	L	Brown	2	M	Y	S	MR	R	S	4	4	N	
Rocky	AgriPro	1978	HRW	N	E	M	White	2	MW	N	MR	R	MS	S	3	3	N	
Wahoo	UNL	2000	HRW	Y	E	M	White	3	S	N	MR	R	MS	S	3	2	N	
Yellowstone	MSU	2005	HRW	Y	M	S	White	4	MS	N	MS	MS	R	S	3	4	N	
<u>Experimental</u>																		
ID0621	UI	-	HRW	-	M	-	White	-	S	N	MS	-	R	S	-	-	N	
MT0495	MSU	-	HRW	-	M	S	White	4	S	N	S	S	R	S	3	3	N	
MT06103	MSU	-	HRW	-	E-M	L-	White	2	S	N	-	R	R	S	3	3	N	
MTS0531	MSU	-	HW	-	M	S	White	2	M	Y	MS	MR	R	S	3	3	N	
MTS0532	MSU	-	HW	-	M	S	White	2	S	Y	MS	MR	R	S	3	3	N	
MTS0713	MSU	-	HRW	-	M	L	White	2	MS	Y	-	R	R	S	3	4	N	
UT9325-55	USU	-	HRW	-	E-M	-	Brown	-	S	N	S	-	R	R	-	-	N	
UT9743-42	USU	-	HRW	-	-	-	White	-	S	N	S	-	MR	MR	4	4	N	

1/ AgriPro=AgriPro Seeds Inc. Berthoud, Colorado; CDC=Crop Development Centre, University of Saskatchewan; MSU=Montana State University; NDSU=North Dakota State University; UI=University of Idaho; UNL=University of Nebraska-Lincoln; USU=Utah State University; WestBred=WestBred LLC, Bozeman, Montana.

2/ HRW=hard red winter 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/ L=long coleoptile length, M=medium coleoptile length, S=short coleoptile length.

6/ Winter survival rated from 1 to 5 where 1=poor and 5=best winter survival, respectively, based on years of observations at Sidney, Moccasin and Williston.

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

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

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

10/ Signifies a cultivar possessing the Clearfield trait imparting tolerance to products containing imazamox herbicide.

§ 'Bynum', 'CDC Falcon', 'Hyalite', and 'Norris' licensed for sale on an exclusive basis by WestBred LLC, Bozeman, Montana.

Table 3. Performance of 28 commercial and experimental winter wheat cultivars tested under no-till, irrigated conditions near Huntley, Montana during 2009. Cultivars listed alphabetically. (Exp. 093880).

Cultivar	1/			Test Weight lb/bu	Grain Moisture %	2/		Plant Height inches	3/ Lodging 0-9	Heading Date	
	2009	2008-09	2007-09			Grain Protein %	Grain Protein %			Julian	Calendar
	----- bushels per acre -----										
<b>Commercial</b>											
Accipiter	98.6			59.2	10.8	12.2	39.4	5.3	165.3	Jun 12	
Bynum	85.6	103.9	99.3	59.9	10.8	14.7	44.8	8.0	162.7	Jun 11	
Carter	83.0	108.9		57.6	10.1	12.7	36.4	7.0	162.0	Jun 11	
CDC Falcon	93.5	<b>117.4*</b>	<b>118.6*</b>	57.3	10.0	12.8	36.2	3.7	163.0	Jun 12	
Decade (MT0552)	94.4	<b>115.2*</b>		57.4	10.7	11.9	38.0	5.3	163.0	Jun 12	
Genou	80.1	108.1	107.7	60.4	10.8	13.7	40.1	8.0	164.0	Jun 13	
Hyalite	94.0	<b>114.4*</b>	<b>113.3*</b>	58.7	10.2	13.5	38.4	8.0	161.0	Jun 10	
Jagalene	96.8	<b>117.9*</b>	<b>116.7*</b>	57.7	10.4	12.8	39.6	8.0	162.0	Jun 11	
Jerry	76.5			57.6	10.7	13.4	44.1	8.0	163.3	Jun 12	
Ledger	93.8	<b>114.2*</b>	107.2	58.6	10.8	13.3	39.2	8.0	163.0	Jun 12	
Moreland	97.0	<b>117.7*</b>	<b>119.0*</b>	55.7	10.3	12.9	38.2	2.7	163.3	Jun 12	
Neeley	82.8	100.0	99.2	58.9	10.5	13.8	40.3	8.0	165.7	Jun 14	
Norris	<b>108.3*</b>	<b>120.2*</b>	<b>116.8*</b>	59.5	9.6	13.7	42.2	8.0	159.3	Jun 8	
NuSky	67.1	95.2	94.8	58.7	10.2	12.6	38.8	8.0	165.3	Jun 14	
Promontory	91.1	<b>113.9*</b>	<b>119.3*</b>	57.7	10.8	12.0	39.2	8.0	164.3	Jun 13	
Pryor	81.7	108.3	<b>109.4*</b>	56.4	11.0	13.2	38.0	3.3	164.3	Jun 13	
Rampart	94.0	<b>110.9*</b>	105.4	59.7	10.0	14.5	44.3	8.3	163.7	Jun 12	
Rocky	80.7	100.2	94.6	60.1	10.6	13.3	42.7	8.0	162.7	Jun 11	
Wahoo	81.8	105.1	104.1	56.8	10.1	12.5	36.0	8.3	160.3	Jun 9	
Yellowstone	93.4	<b>121.2*</b>	<b>117.8*</b>	58.0	10.5	12.8	40.2	6.0	164.3	Jun 13	
<b>Experimental</b>											
ID0621	99.2			59.2	10.7	12.2	38.3	6.7	164.7	Jun 13	
MT0495	<b>116.1**</b>	<b>126.3**</b>	<b>121.0**</b>	57.7	10.4	13.0	39.8	7.7	163.7	Jun 12	
MT06103	97.4			60.5	10.8	13.8	39.6	7.0	161.0	Jun 10	
MTS0531	<b>104.5*</b>	<b>118.6*</b>		56.6	10.2	13.8	37.1	8.0	163.3	Jun 12	
MTS0532	91.0	<b>113.4*</b>		58.2	10.7	13.7	37.3	8.0	164.0	Jun 13	
MTS0713	81.2			59.0	10.4	12.9	38.6	8.0	164.0	Jun 13	
UT9325-55	83.8	109.7		57.9	10.4	14.0	41.1	8.0	163.3	Jun 12	
UT9743-42	<b>111.1*</b>	<b>123.3*</b>	<b>116.5*</b>	56.9	9.6	13.1	35.6	0.0	164.3	Jun 13	
Average	91.4	112.3	110.0	58.3	10.4	13.2	39.4	6.8	163.3	Jun 12	
PLSD (p=0.05)	16.8	15.4	13.2	1.2	ns	1.2	4.8	2.6	1.1		
CV%	11.2	11.5	12.5	1.2	6.6	5.6	7.4	23.0	0.4		

1/ Yields are based on a 60 pound standard bushel weight and adjusted to 13 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.

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

\*\* 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 3 continued.

Huntley Irrigated Winter Wheat (Exp. 083880)

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Planted: September 29, 2008      Harvested: August 12 & 13, 2009  
Fertility: 11-52-00, 100 lb/a at planting. 46-0-0, 220 lb/a, April 2, 2008.  
Herbicide: Maverick, 0.67 oz/a +Roundup RT3, 12.8 oz/a, September 27, 2007; Bronate Advanced, 14 oz/a + Harmony Extra, 0.33 oz/a + R-11, 4 oz/a, POST, May 7, 2008.  
Previous crop: spring barley  
Irrigation: profile flooded, August 28, 2007 (preplant); May 2, 2008; June 18, 2008  
Precipitation: 10.8 inches.

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Table 4. Performance of 25 commercial and experimental winter wheat cultivars tested under no-till, dryland conditions near Rapelje, Montana during 2009. Cultivars listed alphabetically. (Exp. 093881).

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>								
Accipiter	62.1			62.1	9.8	9.7	32.5	
Bynum	54.5	55.8	53.3	61.5	9.6	12.1	33.2	
Carter	57.9	58.8		60.1	9.4	10.9	28.3	
CDC Falcon	49.7	62.4	65.0	61.0	9.7	10.5	27.4	
Decade (MT0552)	<b>72.2*</b>	<b>80.2**</b>		61.9	9.7	11.6	32.2	
Genou	63.0	62.9	60.0	61.8	9.7	9.9	35.8	
Hyalite	58.6	66.1	68.5	63.0	10.3	9.9	32.2	
Jagalene	61.6	66.5	68.8	63.1	9.7	11.7	30.3	
Jerry	55.3			60.6	9.6	11.6	34.6	
Ledger	53.4	63.0	65.3	60.9	9.6	10.2	32.1	
Neeley	61.1	<b>69.1*</b>	<b>69.5*</b>	62.1	9.7	9.7	34.0	
Norris	<b>71.7*</b>	<b>76.9*</b>	<b>77.0*</b>	62.2	9.5	10.3	33.0	
NuSky	59.5	64.6	<b>70.6*</b>	62.0	10.1	10.1	34.2	
Promontory	63.9	<b>69.1*</b>	<b>73.3*</b>	63.4	9.8	10.4	33.9	
Pryor	<b>85.3**</b>	<b>78.1*</b>	<b>78.3*</b>	62.2	9.9	8.7	31.1	
Rampart	52.7	52.2	56.3	61.3	9.6	10.5	34.2	
Rocky	58.7	65.6	65.7	62.4	10.3	10.4	34.1	
Wahoo	63.3	<b>73.0*</b>	<b>76.3*</b>	60.2	9.6	9.8	31.9	
Yellowstone	<b>71.9*</b>	<b>77.0*</b>	<b>79.6**</b>	61.8	10.1	8.6	33.3	
<u>Experimental</u>								
MT0495	60.6	<b>68.0*</b>	<b>69.8*</b>	61.5	9.7	10.0	30.6	
MT06103	<b>74.7*</b>			61.9	9.7	10.8	33.3	
MTS0531	56.1	66.2		61.3	9.9	11.4	29.9	
MTS0532	63.4	65.5		61.7	10.1	11.5	30.8	
MTS0713	61.6			62.2	9.8	11.0	32.3	
UT9325-55	62.9	65.0		61.2	9.5	9.1	34.1	
Average	62.2	66.9	68.6	61.7	9.8	10.4	32.4	
PLSD (p=0.05)	15.9	13.4	10.5	0.9	0.3	ns	2.1	
CV%	15.5	16.7	15.9	0.9	2.0	13.8	3.9	

1/ Yields are based on a 60 pound standard bushel weight and adjusted to 13 percent moisture content.

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

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

\*\* 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).

Rapelje Dryland Winter Wheat (Exp. 093881)

Planted:	September 24, 2008
Harvested:	August 13, 2009
Fertility:	11-52-00, 50 lb/a in-furrow at planting; 46-0-0, 65 lb/a, May 14, 2009
Herbicide:	Glean, 0.10 oz/a, pre-plant
Previous crop:	chemical fallow

Table 5. Performance of 25 commercial and experimental winter wheat cultivars tested under no-till, dryland conditions near Forsyth, Montana during 2009. Cultivars listed alphabetically. (Exp. 093882).

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>								
Accipiter	34.4			62.9	10.8	8.8	30.6	
Bynum	32.3	36.1	35.2	61.6	10.5	9.9	32.4	
Carter	38.7	43.1		61.3	10.7	9.6	27.2	
CDC Falcon	36.4	41.9	41.3	62.0	10.9	8.9	28.6	
Decade (MT0552)	44.0	<b>46.9*</b>		62.9	10.9	8.8	31.1	
Genou	39.5	41.2	41.2	62.1	10.9	8.4	34.0	
Hyalite	32.9	36.5	34.5	62.9	10.7	9.7	31.4	
Jagalene	41.8	41.9	40.5	64.0	10.9	8.9	30.3	
Jerry	39.7			61.0	10.7	10.1	35.3	
Ledger	39.7	40.8	42.9	61.6	10.7	9.2	29.8	
Neeley	40.9	43.5	43.1	61.8	10.7	9.2	32.9	
Norris	35.8	<b>44.8*</b>	42.9	63.2	10.6	8.3	32.1	
NuSky	29.2	42.7	42.0	62.0	10.8	8.6	33.1	
Promontory	40.0	43.9	42.1	63.7	10.8	9.2	33.2	
Pryor	39.9	43.3	<b>45.8*</b>	62.4	10.7	8.0	28.3	
Rampart	33.1	39.6	37.5	61.4	10.6	9.4	32.8	
Rocky	32.2	38.4	38.8	63.0	11.0	8.6	32.5	
Wahoo	43.2	<b>51.2**</b>	<b>50.8**</b>	60.7	10.6	8.9	31.3	
Yellowstone	38.1	43.9	<b>44.7*</b>	61.4	10.6	8.6	31.0	
<u>Experimental</u>								
MT0495	34.2	40.1	40.6	61.1	10.5	9.3	29.6	
MT06103	44.0			62.2	10.8	8.9	32.4	
MTS0531	36.7	42.7		61.8	10.8	9.3	30.4	
MTS0532	33.2	40.3		61.6	10.8	9.1	30.0	
MTS0713	33.8			63.1	10.9	8.8	30.7	
UT9325-55	38.0	43.2		62.6	10.5	9.8	33.9	
Average	37.3	42.2	41.5	62.2	10.7	9.0	31.4	
PLSD (p=0.05)	ns	6.7	6.2	0.7	0.2	0.9	2.3	
CV%	14.4	13.7	15.4	0.7	0.9	6.2	4.5	

1/ Yields are based on a 60 pound standard bushel weight and adjusted to 13 percent moisture content.

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

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

\*\* 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).

Forsyth Dryland Winter Wheat (Exp. 093882)

Planted:	September 19, 2008
Harvested:	August 5, 2009
Fertility:	11-52-00, 100 lb/a in-furrow at planting; 46-0-0, 65 lb/a, May 13, 2009
Herbicide:	n/a
Previous crop:	chemical fallow

Table 6. Performance of 25 commercial and experimental winter wheat cultivars tested under no-till, dryland conditions near Lodge Grass, Montana during 2009. Cultivars listed alphabetically. (Exp. 093883).

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>								
Accipiter	<b>42.0*</b>			58.8	9.9	12.5	33.8	
Bynum	<b>34.5*</b>	40.2	40.3	58.9	9.8	14.4	36.0	
Carter	14.5	42.5		58.3	10.0	14.2	28.3	
CDC Falcon	<b>35.5*</b>	51.0	50.2	58.9	10.1	13.2	30.7	
Decade (MT0552)	32.2	46.1		59.2	9.6	14.8	33.4	
Genou	32.7	45.6	46.8	59.6	9.9	14.6	37.3	
Hyalite	33.9	45.5	48.0	59.9	10.1	14.5	35.2	
Jagalene	32.1	46.7	47.0	60.2	10.1	13.1	33.4	
Jerry	27.4			57.9	10.2	14.2	36.7	
Ledger	<b>44.4*</b>	58.8	52.5	58.3	9.7	13.5	31.3	
Neeley	<b>43.0*</b>	59.1	57.6	58.6	9.7	13.9	36.0	
Norris	<b>41.5*</b>	53.6	49.6	59.9	9.4	13.0	36.8	
NuSky	<b>34.1*</b>	48.7	47.8	59.5	10.4	13.6	37.0	
Promontory	<b>34.6*</b>	50.9	48.9	60.1	10.0	13.8	34.9	
Pryor	27.7	54.6	57.4	58.4	9.9	12.9	31.3	
Rampart	19.4	43.0	46.4	58.0	9.5	15.5	34.7	
Rocky	<b>36.0*</b>	49.3	48.8	60.0	10.0	13.5	36.2	
Wahoo	<b>40.5*</b>	57.5	56.8	57.4	9.9	14.1	33.9	
Yellowstone	33.0	48.7	40.4	58.0	10.1	13.8	33.5	
<u>Experimental</u>								
MT0495	<b>40.4*</b>	55.2	52.6	58.5	9.8	14.1	33.1	
MT06103	<b>39.6*</b>			59.8	9.9	13.2	34.8	
MTS0531	<b>38.1*</b>	50.5		58.4	9.8	14.3	33.1	
MTS0532	<b>45.2**</b>	57.4		58.8	10.2	13.7	32.5	
MTS0713	<b>39.3*</b>			59.8	10.0	14.2	33.2	
UT9325-55	<b>36.5*</b>	56.0		57.7	9.5	14.7	37.8	
Average	35.1	50.5	49.4	58.9	9.9	13.9	34.2	
PLSD (p=0.05)	11.1	ns	ns	0.9	ns	ns	2.1	
CV%	17.6	24.4	26.3	0.8	3.1	6.9	3.4	

1/ Yields are based on a 60 pound standard bushel weight and adjusted to 13 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).

\*\* 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).

Lodge Grass Dryland Winter Wheat (Exp. 093883)

Planted:	September 22, 2008
Harvested:	August 12, 2009
Fertility:	11-52-0, 100 lb/a, at planting; 46-0-0, 65 lb/a, May 12, 2009
Herbicide:	n/a
Previous crop:	chemical fallow

Table 7. Performance of 25 commercial and experimental winter wheat cultivars tested under no-till, dryland conditions near Hardin, Montana during 2009. Cultivars listed alphabetically. (Exp. 093884).

Cultivar	1/ Grain Yield	Test Weight	Grain Moisture	Grain Protein	2/ Plant Height
	bushels/acre				lb/bu
<u>Commercial</u>					
Accipiter	60.1	56.2	7.4	16.2	38.7
Bynum	63.0	59.1	7.7	15.7	42.9
Carter	69.7	57.7	7.6	14.9	33.5
CDC Falcon	68.7	56.1	7.4	15.9	36.4
Decade (MT0552)	<b>73.3*</b>	56.9	7.7	16.8	36.7
Genou	51.2	57.1	7.6	16.2	42.5
Hyalite	70.8	57.8	8.0	15.8	41.0
Jagalene	<b>80.1**</b>	59.6	8.0	15.5	38.9
Jerry	63.4	56.5	7.8	16.2	43.6
Ledger	64.9	58.8	8.0	14.2	38.5
Neeley	53.3	54.7	7.5	18.0	41.3
Norris	<b>72.5*</b>	59.7	7.9	13.9	43.1
NuSky	52.7	56.2	7.9	16.7	39.9
Promontory	64.7	58.9	7.8	14.8	39.5
Pryor	62.2	55.4	7.3	16.7	35.8
Rampart	57.4	57.5	7.6	16.4	43.0
Rocky	68.4	58.9	8.1	15.5	42.7
Wahoo	71.4	55.6	7.5	15.6	39.4
Yellowstone	67.1	56.1	7.7	15.8	37.7
<u>Experimental</u>					
MT0495	<b>73.3*</b>	54.9	7.3	16.3	39.7
MT06103	<b>75.7*</b>	59.2	8.0	16.0	43.0
MTS0531	<b>71.8*</b>	58.1	7.9	15.6	37.1
MTS0532	71.2	57.6	7.8	16.1	38.8
MTS0713	63.2	56.3	7.9	16.3	38.0
UT9325-55	62.9	54.8	7.5	16.7	41.0
Average	66.1	57.2	7.7	15.9	39.7
PLSD (p=0.05)	8.4	1.5	0.3	1.1	2.1
CV%	7.2	1.4	2.4	3.9	2.9

1/ Yields are based on a 60 pound standard bushel weight and adjusted to 13 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).

Hardin Dryland Winter Wheat (Exp. 093884)

Planted:	September 24, 2008
Harvested:	August 12, 2009
Fertility:	11-52-00, 100 lb/a at planting; 46-0-0, 65 lb/a, May 12, 2009
Herbicide:	unknown
Previous crop:	chemical fallow

Table 8. Performance of 25 commercial and experimental winter wheat cultivars tested under conventional, dryland conditions near Molt, Montana during 2009. Cultivars listed alphabetically. (Exp. 093885).

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>							
Accipiter	<b>38.0*</b>			60.9	10.7	9.7	28.6
Bynum	35.5	39.6	31.2	59.3	10.2	10.5	30.7
Carter	28.7	40.9		58.6	10.1	12.1	26.6
CDC Falcon	32.1	44.6	34.4	60.0	10.6	11.2	26.6
Decade (MT0552)	32.6	46.8		60.8	10.5	10.9	30.1
Genou	<b>44.6*</b>	50.1	<b>40.2*</b>	59.7	10.5	9.6	34.1
Hyalite	29.5	36.3	32.0	60.7	10.7	10.3	30.8
Jagalene	30.8	39.3	32.9	61.0	10.5	9.7	30.1
Jerry	28.1			58.7	10.5	11.9	33.5
Ledger	<b>44.6*</b>	50.7	<b>42.1*</b>	59.8	10.5	10.6	30.8
Neeley	<b>39.4*</b>	51.1	<b>43.0*</b>	59.7	10.5	9.7	30.7
Norris	<b>38.1*</b>	50.5	<b>37.8*</b>	60.2	10.1	10.3	30.0
NuSky	<b>38.1*</b>	45.5	<b>38.1*</b>	61.4	11.0	9.7	32.3
Promontory	37.6	47.3	<b>37.3*</b>	61.5	10.6	9.6	33.9
Pryor	<b>43.6*</b>	52.3	<b>44.4**</b>	60.5	10.7	8.3	28.7
Rampart	<b>39.7*</b>	40.3	33.6	59.4	10.3	10.5	32.8
Rocky	37.1	44.7	<b>38.2*</b>	61.4	10.9	9.3	34.7
Wahoo	<b>43.9*</b>	51.6	<b>42.9*</b>	58.6	10.6	9.4	31.2
Yellowstone	35.3	49.3	<b>41.3*</b>	60.3	10.8	9.7	33.8
<u>Experimental</u>							
MT0495	<b>39.4*</b>	48.3	<b>39.9*</b>	60.1	10.5	9.9	31.7
MT06103	<b>42.2*</b>			59.9	10.3	10.6	31.2
MTS0531	37.3	47.6		59.7	10.6	10.9	30.1
MTS0532	<b>44.9**</b>	45.0		60.0	10.8	10.2	30.4
MTS0713	<b>39.0*</b>			60.5	10.4	11.2	30.3
UT9325-55	37.9	43.1		60.1	10.3	9.9	33.1
Average	37.5	45.9	38.1	60.1	10.5	10.2	31.1
PLSD (p=0.05)	6.9	ns	8.1	0.6	0.2	1.6	3.0
CV%	10.1	19.5	22.1	0.6	1.3	9.7	6.0

1/ Yields are based on a 60 pound standard bushel weight and adjusted to 13 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).

\*\* 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).

Molt Dryland Winter Wheat (Exp. 093885)

Planted:	October 2, 2008
Harvested:	August 13, 2009
Fertility:	11-52-00, 100 lb/a at planting; 46-0-0, 65 lb/a, May 14, 2009
Herbicide:	LV6 + Affinity
Previous crop:	summer fallow

Table 9. Grain yield<sup>1/</sup> of 29 commercial and experimental winter wheat cultivars tested at six locations in south central Montana during 2009. Varieties listed by declining average yield across all locations.

Cultivar	Lodge							
	Rapelje No-Till Dryland	Forsyth No-Till Dryland	Grass No-Till Dryland	Hardin No-Till Dryland	Molt Conv. Dryland	Dryland Locations Average	Huntley No-Till Irrigated	All Locations Average
	----- bushels per acre -----							
MT06103	<b>74.7*</b>	44.0	<b>39.6*</b>	<b>75.7*</b>	<b>42.2*</b>	<b>55.1**</b>	97.4	<b>62.2**</b>
Norris	<b>71.7*</b>	35.8	<b>41.5*</b>	<b>72.5*</b>	<b>38.1*</b>	<b>52.4*</b>	<b>108.3*</b>	<b>61.7*</b>
MT0495	60.6	34.2	<b>40.4*</b>	<b>73.3*</b>	<b>39.4*</b>	<b>49.7*</b>	<b>116.1**</b>	<b>60.8*</b>
Wahoo	63.3	43.2	<b>40.5*</b>	71.4	<b>43.9*</b>	<b>52.9*</b>	81.8	<b>57.7*</b>
MTS0532	63.4	33.2	<b>45.2**</b>	71.2	<b>44.9**</b>	<b>50.8*</b>	91.0	<b>57.5*</b>
Jagalene	61.6	41.8	32.1	<b>80.1**</b>	30.8	<b>49.3*</b>	96.8	<b>57.3*</b>
MTS0531	56.1	36.7	<b>38.1*</b>	<b>71.8*</b>	37.3	<b>47.8*</b>	<b>104.5*</b>	<b>57.2*</b>
Decade (MT0552)	<b>72.2*</b>	44.0	32.2	<b>73.3*</b>	32.6	<b>49.7*</b>	94.4	<b>57.2*</b>
Ledger	53.4	39.7	<b>44.4*</b>	64.9	<b>44.6*</b>	<b>49.6*</b>	93.8	<b>57.0*</b>
Pryor	<b>85.3**</b>	39.9	27.7	62.2	<b>43.6*</b>	<b>51.7*</b>	81.7	<b>56.7*</b>
Yellowstone	<b>71.9*</b>	38.1	33.0	67.1	35.3	<b>48.8*</b>	93.4	<b>56.2*</b>
Accipiter	62.1	34.4	<b>42.0*</b>	60.1	<b>38.0*</b>	<b>47.6*</b>	98.6	<b>56.1*</b>
Promontory	63.9	40.0	<b>34.6*</b>	64.7	37.6	<b>48.5*</b>	91.1	<b>55.6*</b>
UT9325-55	62.9	38.0	<b>36.5*</b>	62.9	37.9	47.4	83.8	53.5
Hyalite	58.6	32.9	33.9	70.8	29.5	45.0	94.0	53.2
Neeley	61.1	40.9	<b>43.0*</b>	53.3	<b>39.4*</b>	47.1	82.8	53.0
CDC Falcon	49.7	36.4	<b>35.5*</b>	68.7	32.1	44.4	93.5	52.6
MTS0713	61.6	33.8	<b>39.3*</b>	63.2	<b>39.0*</b>	46.8	81.2	52.6
Genou	63.0	39.5	32.7	51.2	<b>44.6*</b>	46.8	80.1	52.4
Rocky	58.7	32.2	<b>36.0*</b>	68.4	37.1	46.2	80.7	52.0
Bynum	54.5	32.3	<b>34.5*</b>	63.0	35.5	44.0	85.6	50.9
Carter	57.9	38.7	14.5	69.7	28.7	42.7	83.0	49.5
Rampart	52.7	33.1	19.4	57.4	<b>39.7*</b>	40.4	94.0	49.4
Jerry	55.3	39.7	27.4	63.4	28.1	43.0	76.5	48.6
NuSky	59.5	29.2	<b>34.1*</b>	52.7	<b>38.1*</b>	43.6	67.1	47.5
UT9743-42 <sup>§</sup>	--	--	--	--	--	--	<b>111.1*</b>	--
ID0621 <sup>§</sup>	--	--	--	--	--	--	99.2	--
Moreland <sup>§</sup>	--	--	--	--	--	--	97.0	--
Average	62.2	37.3	35.1	66.1	37.5	47.7	91.4	54.7
PLSD (p=0.05)	15.9	ns	11.1	8.4	6.9	7.6	16.8	7.7
CV%	15.5	14.4	17.6	7.2	10.1	22.1	11.2	21.5

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

§ Tested under irrigated conditions at Huntley only in 2009.

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

\*\* 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 10. Performance of 25 commercial and experimental winter wheat cultivars tested under dryland and irrigated conditions at 6 locations in south central Montana during 2009. Cultivars listed alphabetically.

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain Protein	Plant Height
	2009	2008-09	2007-09			%	
	-----bushels per acre -----			lb/bu	%	%	inches
<u>Commercial</u>							
Accipiter	<b>56.1*</b>			60.0	9.9	11.5	33.9
Bynum	50.9	55.1	51.2	60.1	9.8	12.8	36.5
Carter	49.5	58.8		59.0	9.7	12.4	30.3
CDC Falcon	52.6	<b>63.4*</b>	61.1	59.2	9.8	12.1	31.0
Decade (MT0552)	<b>57.2*</b>	<b>67.1*</b>		59.8	9.9	12.5	33.4
Genou	52.4	61.6	58.6	60.1	9.9	12.0	37.3
Hyalite	53.2	59.8	58.9	60.4	10.0	12.3	35.0
Jagalene	<b>57.3*</b>	62.4	60.3	60.9	10.0	11.9	33.9
Jerry	48.6			58.8	9.9	12.9	38.1
Ledger	<b>57.0*</b>	<b>65.5*</b>	60.6	59.6	9.9	11.9	33.8
Neeley	53.0	<b>64.5*</b>	<b>62.0*</b>	59.3	9.8	12.4	35.8
Norris	<b>61.7*</b>	<b>69.2**</b>	<b>63.4*</b>	60.8	9.5	11.6	36.2
NuSky	47.5	59.3	57.9	60.0	10.1	11.9	36.0
Promontory	<b>55.6*</b>	<b>65.0*</b>	<b>63.0*</b>	60.8	10.0	11.7	35.8
Pryor	<b>56.7*</b>	<b>67.3*</b>	<b>66.8**</b>	59.2	9.9	11.3	32.2
Rampart	49.4	57.2	55.7	59.6	9.6	12.8	36.9
Rocky	52.0	59.6	56.6	61.0	10.2	11.8	37.2
Wahoo	<b>57.7*</b>	<b>67.7*</b>	<b>65.5*</b>	58.3	9.7	11.7	33.9
Yellowstone	<b>56.2*</b>	<b>68.0*</b>	<b>62.2*</b>	59.1	10.0	11.6	34.7
<u>Experimental</u>							
MT0495	<b>60.8*</b>	<b>67.6*</b>	<b>63.7*</b>	59.1	9.7	12.1	34.1
MT06103	<b>62.2**</b>			60.5	9.9	12.2	35.7
MTS0531	<b>57.2*</b>	<b>65.1*</b>		59.3	9.9	12.5	32.6
MTS0532	<b>57.5*</b>	<b>64.3*</b>		59.7	10.1	12.3	33.1
MTS0713	52.6			60.1	9.9	12.4	33.8
UT9325-55	53.5	<b>63.4*</b>		59.0	9.6	12.4	36.9
Average	54.7	63.4	60.5	59.8	9.9	12.1	34.7
PLSD (p=0.05)	7.7	5.8	5.1	1.0	0.2	0.8	1.3
CV%	21.5	17.8	21.0	2.4	3.7	10.0	5.9
Location-Years	6	11	17	6	6	6	6

1/ Yields are based on a 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 commercial and experimental winter wheat cultivars tested under dryland conditions only at 5 locations in south central Montana during 2009. Cultivars listed alphabetically.

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>								
Accipiter	<b>47.6*</b>			60.2	9.7	11.3	32.8	
Bynum	44.0	42.9	40.1	60.2	9.6	12.5	34.9	
Carter	42.7	46.3		59.2	9.6	12.3	29.1	
CDC Falcon	44.4	49.9	47.8	59.5	9.7	12.0	30.0	
Decade (MT0552)	<b>49.7*</b>	<b>55.0*</b>		60.3	9.7	12.6	32.4	
Genou	46.8	49.9	47.2	60.0	9.7	11.7	36.7	
Hyalite	45.0	46.1	46.3	60.8	10.0	12.1	34.3	
Jagalene	<b>49.3*</b>	48.6	47.3	61.6	9.9	11.8	32.8	
Jerry	43.0			59.1	9.8	12.8	37.0	
Ledger	<b>49.6*</b>	<b>53.3*</b>	49.9	59.8	9.7	11.6	32.7	
Neeley	47.1	<b>55.7*</b>	<b>53.4*</b>	59.4	9.6	12.2	34.9	
Norris	<b>52.4*</b>	<b>56.4*</b>	<b>51.0*</b>	61.1	9.5	11.1	35.1	
NuSky	43.6	50.4	49.4	60.3	10.0	11.8	35.4	
Promontory	<b>48.5*</b>	<b>52.8*</b>	50.0	61.4	9.8	11.6	35.1	
Pryor	<b>51.7*</b>	<b>57.1*</b>	<b>57.0**</b>	59.8	9.7	11.0	31.0	
Rampart	40.4	43.8	44.2	59.6	9.5	12.5	35.5	
Rocky	46.2	49.5	47.9	61.2	10.1	11.5	36.1	
Wahoo	<b>52.9*</b>	<b>58.3**</b>	<b>56.6*</b>	58.6	9.6	11.5	33.5	
Yellowstone	<b>48.8*</b>	<b>54.7*</b>	49.4	59.3	9.9	11.4	33.6	
<u>Experimental</u>								
MT0495	<b>49.7*</b>	<b>52.9*</b>	50.5	59.3	9.6	11.9	32.9	
MT06103	<b>55.1**</b>			60.5	9.7	11.9	34.9	
MTS0531	<b>47.8*</b>	51.7		59.9	9.8	12.2	31.7	
MTS0532	<b>50.8*</b>	52.0		60.0	9.9	12.1	32.3	
MTS0713	46.8			60.3	9.8	12.3	32.8	
UT9325-55	47.4	51.8		59.2	9.4	12.1	36.1	
Average	47.7	51.4	49.2	60.0	9.7	11.9	33.7	
PLSD (p=0.05)	7.6	5.5	4.8	1.0	0.2	0.9	1.3	
CV%	22.1	18.9	21.9	2.2	3.1	10.2	5.5	
Location-Years	5	9	14	5	5	5	5	

1/ Yields are based on a 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).