MONTANA STATE UNIVERSITY
MONTANA AGRICULTURAL EXPERIMENT STATION

# RESULTS OF AGRONOMIC AND WEED SCIENCE RESEARCH CONDUCTED IN SOUTH CENTRAL MONTANA - 2006

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

http://www.sarc.montana.edu/annualreport/2006/

**PROJECT TITLE:**

Off-Station Winter Wheat Variety Performance Trials in South Central Montana. This research is partially supported by the Montana Wheat and Barley Committee.


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**OBJECTIVES:**

To provide wheat growers in south central Montana with a reliable, unbiased, 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 2006 off-station winter wheat trials were established under dryland conditions near Forsyth and Molt under conventional summer fallow conditions; Hardin, Lodge Grass and Rapelje under no-till, chemical fallow conditions; and under conventional tillage and irrigated conditions at Huntley (Fig. 1). Each trial contained 24 winter wheat entries (22 cultivars, 2 experimental lines), and was planted using a randomized complete block design with three replications. 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 49 to 84 pounds per acre for the dryland sites and from 74 to 126 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 an experimental plot combine. Information pertaining to the traits and characteristics of the 24 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 (2005-06) and three year (2004-06) yield averages are provided for cultivars tested during previous years. Test weight (pounds per bushel) and grain 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 by the MSU Cereal Quality Lab for each entry bulked across replications. Reported grain protein values have been 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 of all cultivars was noted at the irrigated Huntley location during 2006, and recorded on a 0 to 9 scale representing no lodging to all stems lying flat on the ground, respectively. Heading 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 7).

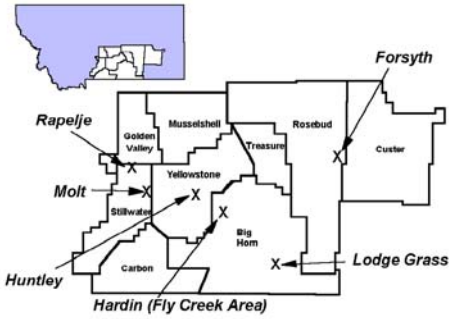


Figure 1. 2006 off-station winter wheat trial locations in south central Montana.

**RESULTS:**

All six of the winter wheat test locations planted in the fall of 2005 received enough fall precipitation to facilitate germination and emergence. The irrigated site near Huntley was pre-irrigated in late August to saturate the soil profile before the trial was planted. Pre-plant soil testing also revealed more than 136 pounds of $NO_3$-N was present in the top four feet of the soil profile at the Huntley site, negating the need to top dress with additional nitrogen at this location prior to planting. Winter wheat stands appeared fairly uniform at all sites before winter weather conditions occurred. Most of the test sites were unusually dry over-winter, with very little snow accumulating during December, January and February. Dry conditions prevailed until mid-March, when early spring rains produced above average precipitation during a period from late March to early April.

The region was unusually dry and warm during May, June and July. Huntley received only 1.7 inches of precipitation during this period in 2006, compared to the 5.9 inches this location normally receives during this three month interval. Accumulated heat units at Huntley were 20 percent above normal from May 1 to the middle of July. The trial at Forsyth was severely damaged by hail in mid June and was not harvested in 2006. Stripe rust (*Puccinia striiformis*), which adversely impacted winter wheat yields and grain quality in other regions of the state, was not evident in the off station winter wheat trials conducted in south central Montana. Hot, dry weather throughout June and early July hastened maturation of the crop, but soil moisture reserves were apparently adequate for winter wheat to produce respectable yields at most sites. Overall, winter wheat yields among the harvested trials in 2006 were average to above average, test weights were above average, and grain protein content elevated at all sites compared to the trials conducted at these sites the previous year.

Average winter wheat yield under irrigated condition in Huntley during 2006 was 111.3 bu/a (Table 3), about 35 percent more than winter wheat yield for this site the previous year. While some lodging was evident in all entries, lodging was not as severe for most entries during the 2006 season compared to that observed in 2005. Yields ranged from 86.9 bu/a for ‘Rocky’ to 134.9 bu/a for ‘Yellowstone’. ‘Bynum’ hard red winter wheat produced the heaviest test weight under irrigated

conditions during 2006, averaging 64.7 lb/bu, with 18 of the 24 entries producing test weights heavier than or equal to 60 lb/bu. Grain protein averaged 12.0 percent and ranged from 10.4 to 13.7 percent. Two-year average yield for winter wheat varieties tested during 2005 and 2006 averaged 96.1 bu/a. Three-year average yield for winter wheat varieties tested during 2004 to 2006 averaged 98.9 bu/a with Yellowstone winter wheat producing the highest average grain yield at 119.4 bu/a. Only two other commercial entries ('CDC Falcon' and 'Pryor') have produced yields equal to the yield of Yellowstone under irrigation at this site for the past three years.

Average yield under dryland, chemical fallow conditions at Rapelje in 2006 was 75.7 bu/a (Table 4), more than a 40 percent increase in winter wheat yields observed at this site in 2005. Yields ranged from 65.9 bu/a for 'Rampart' to 88.6 bu/a for the experimental line 'MT02113'. Pryor was the highest yielding commercial entry at Rapelje during 2006, averaging 85.7 bu/a. Ten additional entries including, 'Genou', 'Hyalite', 'Jagalene', 'Ledger', 'Millenium', 'Neeley', 'Norris', 'Promontory', 'Wahoo', and Yellowstone also produced yields statistically equal with that of MT02113. Average test weight was 62.8 lb/bu. Grain protein averaged 13.2 percent and ranged from 11.5 to 14.4 percent. Two-year average yield for winter wheat varieties tested at Rapelje during 2005 and 2006 averaged 63.8 bu/a, with Yellowstone averaging 76.0 bu/a as the top yielding two-year entry. Hyalite, Jagalene, 'Jerry', Norris, Promontory, Pryor and Wahoo produced yields from 67.3 to 74.0 bu/a, equal to the yield produced by Yellowstone winter wheat the past two years at this location.

Agronomic performance of the winter wheat cultivars and experimental lines tested under dryland conditions near Lodge Grass during 2006 is presented in Table 5. The Lodge Grass location was the driest among the 2006 test sites, and was partially damaged by drifting herbicide applied preplant to the surrounding spring barley crop during the spring of 2006. Harvested yields were lowest among the 5 harvested locations. Average grain yield was 38.4 bu/a, with no difference in yield detected between the 24 entries. Average test weight was 61.6 lb/bu. Grain protein averaged 13.4 percent and ranged from 12.2 to 14.5 percent.

Winter wheat yields under dryland, no-till conditions at the Fly Creek site near Hardin averaged 54.7 bu/a in 2006 (Table 6). No difference in predicted yield was detected between the 24 entries. Average test weight was 62.2 lb/bu, and varied from 58.6 lb/bu for 'Paul' to 64.3 lb/bu for Jagalene. Grain protein levels averaged 12.4 percent among the 24 entries, with 'BigSky' possessing the highest protein level at 14.1 percent.

Average yield under dryland, summer fallow conditions at Molt in 2006 was 60.1 bu/a (Table 7), 20 percent greater than yields observed at Molt in 2005. Yields ranged from 52.7 bu/a for Bynum to 74.0 bu/a for Genou. Only two other entries, Neeley and Wahoo, produced yields statistically equal to the yield of Genou at Molt. Average test weight was 63.8 lb/bu. Grain protein averaged 11.9 percent and ranged from 10.8 percent for Pryor to 13.3 percent for Bynum. Two-year average yield for winter wheat varieties tested at Molt during 2005 and 2006 averaged 55.3 bu/a, with Wahoo averaging 64.6 bu/a as the top yielding two-year entry. Genou, Neeley, Paul and the experimental line 'MT01148' produced yields from 58.8 to 64.1 bu/a, equal to the yield produced by Wahoo winter wheat the past two years at this location.

**SUMMARY:**

Significant differences in yield among cultivars tested in 2006 were obtained under both dryland and irrigated conditions (Tables 8, 9 and 10). Yellowstone produced the highest yield of 75.6 bu/a, averaged across all five of the test locations harvested in 2006, and produced the highest yield (134.9 bu/a) among entries tested at the irrigated site near Huntley (Table 8). Wahoo was the highest yielding commercial entry tested at the four dryland sites harvested in 2006 (Table 10), averaging 62.9 bu/a. Genou, Ledger, Millenium, Neeley, Norris,

Pryor and Yellowstone also were top yielding entries averaged across dryland locations. Surprisingly, two older cultivars, 'Rocky' and 'Tiber', did not perform particularly well at any individual site, but did yield consistently well enough to rank among the top yielding entries averaged across dryland sites.

Since 2004, experiments representing 15 location-years of testing have uniformly tested 18 cultivars at several dryland and irrigated sites in south central Montana (Table 9). Under both dryland and irrigated conditions, averaged across three years, Pryor hard red winter wheat has been the highest yielding cultivar averaging 68.4 bu/a, with only Yellowstone producing yields equal to those of Pryor under these conditions. Pryor, Wahoo and Yellowstone also have been the highest yielding cultivars tested over three years, 53.0, 51.2 and 51.1 bu/a, respectively, when comparing only dryland environments tested in south central Montana since 2004 (Table 10).

**FUTURE PLANS:**

All six off-station winter wheat variety evaluations will be planted during the fall of 2006 for continuation of the program through 2007. The authors of this article wish to thank the Montana Wheat and Barley Committee for continued support of this research project.

Table 1. Adjusted seeding rates used to establish 24 winter wheat cultivars tested at six off-station sites in south central Montana during 2006.

| 1/ Cultivar | Thousand Kernel Weight | Seeds per Pound | 2/ Dryland Seeding Rate | | 3/ Irrigated Seeding Rate | |
|---|---|---|---|---|---|---|
| | | | per plot | per acre | per plot | per acre |
| | grams | # | grams | pounds | grams | pounds |
| BigSky | 29.8 | 15,254 | 47.8 | 69 | 71.7 | 103 |
| Bynum | 29.7 | 15,291 | 47.7 | 68 | 71.6 | 103 |
| CDC Falcon | 21.8 | 20,848 | 35.0 | 50 | 52.5 | 75 |
| Genou | 25.6 | 17,715 | 41.2 | 59 | 61.8 | 89 |
| Hyalite | 25.7 | 17,661 | 41.3 | 59 | 62.0 | 89 |
| Jagalene | 31.6 | 14,346 | 50.9 | 73 | 76.3 | 109 |
| Jerry | 32.7 | 13,874 | 52.6 | 75 | 78.9 | 113 |
| Ledger | 34.2 | 13,284 | 54.9 | 79 | 82.4 | 118 |
| Millenium | 32.4 | 13,992 | 52.1 | 75 | 78.2 | 112 |
| Morgan | 24.8 | 18,287 | 39.9 | 57 | 59.8 | 86 |
| Neeley | 29.7 | 15,273 | 47.8 | 69 | 71.7 | 103 |
| Norris | 32.6 | 13,938 | 52.3 | 75 | 78.5 | 113 |
| NuSky | 22.2 | 20,421 | 35.7 | 51 | 53.6 | 77 |
| Paul | 21.9 | 20,766 | 35.1 | 50 | 52.7 | 76 |
| Promontory | 33.6 | 13,493 | 54.1 | 78 | 81.1 | 116 |
| Pryor | 21.3 | 21,302 | 34.2 | 49 | 51.4 | 74 |
| Rampart | 28.4 | 15,981 | 45.7 | 65 | 68.5 | 98 |
| Rocky | 24.8 | 18,314 | 39.8 | 57 | 59.8 | 86 |
| Tiber | 30.9 | 14,682 | 49.7 | 71 | 74.5 | 107 |
| Vanguard | 28.0 | 16,217 | 45.0 | 65 | 67.5 | 97 |
| Wahoo | 29.3 | 15,472 | 47.2 | 68 | 70.7 | 101 |
| Yellowstone | 32.5 | 13,965 | 52.2 | 75 | 78.4 | 112 |
| MT01148 | 36.4 | 12,485 | 58.4 | 84 | 87.7 | 126 |
| MT02113 | 30.5 | 14,882 | 49.0 | 70 | 73.5 | 105 |

1/ All seed lots treated with 1.0 fl oz of Dividend XL/cwt, and 0.8 fl oz of Cruiser 5FS/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.

Table 2. Selected characteristics and traits of 24 winter wheat cultivars performance tested at six off-station sites in south central Montana during 2006.

| Cultivar | 1/ Origin | Year of Release | 2/ Market Class | 3/ PVP | 4/ Maturity | 5/ Coleoptile Length | Chaff Color | 6/ Winter Survival | 7/ Straw Strength | Solid Stem | 8/ Disease Resistance: Leaf Rust | Stem Rust | Stripe Rust | Dwarf Smut | 9/ Quality: Milling | Baking | 10/ Clearfield Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Yes/No | | | | 1-5 | | Yes/No | | | | | 1-5 | 1-5 | Yes/No |
| Commercial Entries | | | | | | | | | | | | | | | | | |
| BigSky | MSU | 2001 | HRW | Y | M | M | White | 4 | S | N | S | R | S | S | 4 | 3 | N |
| Bynum§ | MSU | 2006 | HRW | - | E | L | Brown | 2 | S | Y | - | M | R | S | 4 | 4 | Y |
| CDC Falcon§ | CDC | 1999 | HRW | Y | M-L | M | White | 4 | MS | N | R | R | MS | S | 3 | 3 | N |
| Genou | MSU | 2004 | HRW | Y | M | L | White | 2 | MS | Y | - | S | MS | S | 4 | 4 | N |
| Hyalite§ | MSU | 2006 | HW | - | E | S | White | 3 | S | N | - | R | S | S | 3 | 3 | Y |
| Jagalene | AgriPro | 2002 | HRW | Y | E | M | White | 2 | S | N | MR | R | R | S | 3 | 3 | N |
| Jerry | NDSU | 2001 | HRW | N | M-L | M | White | 5 | MS | N | R | R | MR | S | 3 | 3 | N |
| Ledger | WestBred | 2005 | HRW | Y | E | M | White | 2 | W | Y | - | - | MR | S | 4 | 3 | N |
| Millenium | UNL | 2000 | HRW | Y | E | S | White | 3 | MS | N | MR | MR | S | S | 3 | 3 | N |
| Morgan | WestBred | 1996 | HRW | Y | M | S | White | 5 | MS | N | MS | MR | S | S | 3 | 3 | N |
| Neeley | UI | 1980 | HRW | N | M | M | White | 3 | MS | N | S | S | S | S | 3 | 3 | N |
| Norris§ | MSU | 2005 | HRW | - | E | M | Brown | 3 | S | N | - | S | MS | S | 3 | 3 | Y |
| NuSky | MSU | 2001 | HW | N | M | S | White | 4 | M | N | S | R | VS | S | 5 | 4 | N |
| Paul | MSU | 2003 | HRW | Y | M | M | White | 4 | W | N | S | R | VS | S | 4 | 4 | N |
| Promontory | USU | 1990 | HRW | N | E | M | Brown | 2 | MS | N | S | S | R | R | 5 | 4 | N |
| Pryor | WestBred | 2002 | HRW | Y | M-L | M | White | 3 | S | N | - | 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 | - | R | MS | S | 3 | 3 | N |
| Tiber | MSU | 1988 | HRW | N | M | M | Brown | 3 | S | N | - | S | VS | S | 3 | 3 | N |
| Vanguard | MSU | 1995 | HRW | N | M | L | White | 2 | MS | Y | S | S | MR | S | 4 | 4 | N |
| Wahoo | UNL | 2000 | HRW | Y | E | M | White | 3 | S | N | MR | MR | MS | S | 3 | 2 | N |
| Yellowstone | MSU | 2005 | HRW | Y | M | S | White | 4 | MS | N | S | S | R | S | 3 | 4 | N |
| Experimental Entries | | | | | | | | | | | | | | | | | |
| MT01148 | MSU | - | HRW | - | M | M | White | 3 | S | N | - | R | R | MR | 3 | 3 | N |
| MT02113 | MSU | - | HRW | - | M | M | White | 3 | S | N | - | S | VS | - | 2 | 3 | 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, North Dakota.

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 Beyond® (imazamox) herbicide.

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

Table 3. Performance of 24 winter wheat cultivars and experimental lines tested using conventional tillage under conventional tillage, irrigated conditions near Huntley, Montana during 2006. Cultivars listed alphabetically. (Exp. 063880).

| Cultivar | 1/ Grain Yield 2006 | 2005-06 | 2004-06 | Test Weight | Grain Moisture | 2/ Grain Protein | Plant Height | 3/ Lodging | Heading Date Julian | Calendar |
|---|---|---|---|---|---|---|---|---|---|---|
| | ---------- bushels per acre ---------- | | | lb/bu | % | % | inches | 0-9 | | |
| BigSky | 99.7 | 93.3 | 99.7 | 61.8 | 14.1 | 12.9 | 47.5 | 6.7 | 150.3 | May 29 |
| Bynum (MTCL0318) | 114.2 | 96.3 | | 64.7 | 9.5 | 12.6 | 41.9 | 5.7 | 149.0 | May 28 |
| CDC Falcon | 121.3 | 102.0 | **103.9*** | 62.5 | 9.4 | 11.9 | 40.2 | 3.7 | 150.3 | May 29 |
| Genou | 106.6 | 90.6 | 92.7 | 63.5 | 11.6 | 13.2 | 41.7 | 6.3 | 151.3 | May 30 |
| Hyalite (MTCL0306) | 117.0 | 98.7 | | 62.8 | 10.6 | 11.5 | 40.3 | 6.7 | 148.7 | May 27 |
| Jagalene | 120.7 | 108.2 | 100.2 | 63.8 | 9.5 | 11.5 | 39.9 | 3.7 | 143.7 | May 22 |
| Jerry | 103.3 | 95.1 | 97.2 | 62.1 | 10.5 | 11.7 | 44.3 | 5.3 | 150.0 | May 29 |
| Ledger | 118.1 | | | 61.1 | 13.6 | 11.5 | 36.9 | 8.0 | 150.0 | May 29 |
| Millenium | 115.0 | | | 62.3 | 10.3 | 11.6 | 45.2 | 6.0 | 145.0 | May 24 |
| Morgan | 105.0 | 92.0 | 95.7 | 60.0 | 13.8 | 12.2 | 42.0 | 7.3 | 152.0 | May 31 |
| Neeley | 102.6 | 95.0 | 103.1 | 59.2 | 15.8 | 11.8 | 45.6 | 5.7 | 154.0 | Jun 2 |
| Norris (MTCL0316) | 102.2 | 100.7 | | 61.9 | 12.3 | 13.0 | 44.7 | 6.7 | 150.3 | May 29 |
| NuSky | 105.5 | 81.0 | 87.9 | 60.0 | 13.2 | 11.5 | 43.2 | 4.3 | 152.0 | May 31 |
| Paul | 100.6 | 84.6 | 94.3 | 57.8 | 15.9 | 11.7 | 36.9 | 7.3 | 152.3 | May 31 |
| Promontory | 120.0 | 98.5 | 101.3 | 61.0 | 13.7 | 10.9 | 41.6 | 5.0 | 150.3 | May 29 |
| Pryor | 131.2 | 106.7 | **111.9*** | 61.7 | 11.5 | 10.4 | 37.6 | 2.7 | 150.7 | May 29 |
| Rampart | 94.0 | 85.4 | 86.8 | 62.8 | 11.4 | 13.3 | 43.8 | 7.3 | 150.7 | May 29 |
| Rocky | 86.9 | 82.2 | 87.4 | 63.4 | 10.8 | 13.0 | 43.0 | 5.7 | 149.0 | May 28 |
| Tiber | 95.9 | 84.7 | 88.6 | 56.1 | 17.7 | 12.2 | 43.5 | 7.0 | 156.7 | Jun 4 |
| Vanguard | 102.7 | 97.6 | 99.0 | 62.1 | 12.8 | 13.7 | 42.9 | 6.7 | 153.7 | Jun 1 |
| Wahoo | 124.5 | 100.2 | 99.8 | 60.7 | 10.2 | 11.9 | 39.1 | 6.3 | 149.0 | May 28 |
| Yellowstone | 134.9 | 118.0 | **119.4**** | 59.4 | 13.8 | 11.0 | 40.4 | 5.7 | 151.3 | May 30 |
| MT01148 | 125.8 | 106.4 | **111.2*** | 58.5 | 16.4 | 12.3 | 43.8 | 5.7 | 153.3 | Jun 1 |
| MT02113 | 122.8 | | | 57.4 | 15.8 | 11.4 | 41.3 | 3.7 | 152.7 | May 31 |
| Average | 111.3 | 96.1 | 98.9 | 61.1 | 12.7 | 12.0 | 42.0 | 5.8 | 150.7 | May 29 |
| PLSD (p=0.05) | ns | ns | 15.8 | 4.6 | 4.0 | - | 4.0 | ns | 2.0 | |
| CV% | 16.5 | 17.9 | 16.7 | 4.6 | 19.1 | - | 5.8 | 43.4 | 0.8 | |

1/ Yields are based on a 60 pound standard bushel weight and adjusted to 13 percent moisture content.
2/ Grain protein values determined from samples bulked across replications and 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).

Huntley Irrigated Winter Wheat (Exp. 063880)

| | | | |
|---|---|---|---|
| Planted: | September 21, 2005 | Harvested: | July 18, 2006 |
| Fertility: | 11-52-00, 100 lbs/a at planting; 34-0-0, 200 lbs/a, March 24, 2006; 34-0-0, 45 lbs/a, June 6, 2006. | | |
| Herbicide: | Roundup Ultra, 1 pt/a; Ammonium Sulfate, 1 qt/a, Sept. 28, 2005. | | |
| Previous crop: | spring barley | | |
| Irrigation: | profile flooded, August 28, 2005 (preplant), May 18 and June 7, 2006. | | |
| Precipitation: | 11.28 inches. | | |

Table 4. Performance of 24 winter wheat cultivars and experimental lines tested under conventional, dryland conditions near Rapelje, Montana during 2006. Cultivars listed alphabetically. (Exp. 063881).

| Cultivar | Grain Yield 1/ 2006 | Grain Yield 1/ 2005-06 | Test Weight | Grain Moisture | Grain Protein 2/ | Plant Height |
|---|---|---|---|---|---|---|
| | -------- bu/acre ------- | | lb/bu | % | % | inches |
| BigSky | 70.2 | 56.0 | 63.3 | 8.3 | 13.1 | 35.3 |
| Bynum (MTCL0318) | 66.9 | 59.0 | 62.8 | 8.0 | 13.3 | 33.7 |
| CDC Falcon | 71.0 | 53.7 | 62.8 | 8.3 | 12.2 | 27.8 |
| Genou | **78.7*** | 61.8 | 62.7 | 8.3 | 12.9 | 34.7 |
| Hyalite (MTCL0306) | **80.9*** | **70.3*** | 63.4 | 8.6 | 13.4 | 32.7 |
| Jagalene | **79.2*** | **74.0*** | 64.4 | 8.4 | 13.6 | 31.6 |
| Jerry | 70.7 | **67.3*** | 61.4 | 8.2 | 13.9 | 35.1 |
| Ledger | **77.4*** | | 63.1 | 8.2 | 12.3 | 30.1 |
| Millenium | **79.1*** | | 63.5 | 8.6 | 12.7 | 34.6 |
| Morgan | 70.7 | 61.8 | 62.2 | 8.1 | 14.1 | 34.1 |
| Neeley | **76.7*** | 64.2 | 61.3 | 8.4 | 14.0 | 33.2 |
| Norris (MTCL0316) | **82.4*** | **68.6*** | 63.5 | 8.2 | 12.9 | 34.3 |
| NuSky | 70.3 | 57.3 | 62.5 | 8.5 | 14.4 | 34.8 |
| Paul | 75.2 | 60.3 | 61.5 | 8.3 | 12.9 | 30.1 |
| Promontory | **80.1*** | **71.6*** | 64.3 | 8.4 | 12.4 | 32.2 |
| Pryor | **85.7*** | **71.4*** | 63.5 | 8.5 | 11.5 | 30.1 |
| Rampart | 65.9 | 55.1 | 62.5 | 8.0 | 13.8 | 34.7 |
| Rocky | 72.8 | 58.2 | 63.5 | 8.4 | 13.0 | 35.0 |
| Tiber | 69.1 | 58.9 | 63.5 | 8.2 | 12.5 | 35.1 |
| Vanguard | 70.2 | 58.9 | 63.0 | 8.4 | 13.7 | 35.5 |
| Wahoo | **78.5*** | **70.8*** | 61.7 | 8.1 | 13.4 | 30.5 |
| Yellowstone | **84.0*** | **76.0**** | 61.6 | 8.3 | 13.0 | 31.9 |
| MT01148 | 73.3 | 63.8 | 62.8 | 8.4 | 13.5 | 34.0 |
| MT02113 | **88.6**** | | 61.6 | 8.3 | 13.3 | 33.6 |
| Average | 75.7 | 63.8 | 62.8 | 8.3 | 13.2 | 33.1 |
| PLSD (p=0.05) | 12.2 | 10.9 | 1.3 | 0.3 | - | 2.6 |
| CV% | 9.8 | 14.2 | 1.3 | 2.5 | - | 4.7 |

1/ Yields are based on a 60 pound standard bushel weight and adjusted to 13 percent moisture content.
2/ Grain protein values determined from samples bulked across replications and 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).

Rapelje Dryland Winter Wheat (Exp. 063881)

| | |
|---|---|
| Planted: | September 30, 2005 |
| Harvested: | July 19, 2006 |
| Fertility: | 11-52-00, 100 lbs/a at planting |
| Herbicide: | n/a |
| Previous crop: | chemical fallow |

Table 5. Performance of 24 winter wheat cultivars and experimental lines tested under conventional, dryland conditions near Lodge Grass, Montana during 2006. Cultivars listed alphabetically. (Exp. 063883).

| Cultivar | Grain Yield 1/ 2006 | Grain Yield 1/ 2005-06 | Grain Yield 1/ 2004-06 | Test Weight | Grain Moisture | Grain Protein 2/ | Plant Height |
|---|---|---|---|---|---|---|---|
| | bushels/acre | | | lb/bu | % | % | inches |
| BigSky | 33.7 | 23.2 | 24.7 | 61.8 | 8.6 | 14.5 | 28.0 |
| Bynum (MTCL0318) | 37.8 | 23.7 | | 61.5 | 7.7 | 14.1 | 28.9 |
| CDC Falcon | 38.5 | 21.6 | 26.1 | 61.2 | 8.0 | 13.1 | 21.7 |
| Genou | 38.8 | 25.1 | 27.5 | 62.1 | 8.0 | 13.4 | 29.2 |
| Hyalite (MTCL0306) | 33.9 | 20.2 | | 61.1 | 8.3 | 14.2 | 26.5 |
| Jagalene | 38.3 | 20.7 | 24.5 | 63.2 | 8.6 | 13.4 | 24.8 |
| Jerry | 36.6 | 21.6 | 25.8 | 60.9 | 8.0 | 13.5 | 30.1 |
| Ledger | 45.8 | | | 62.6 | 8.2 | 12.2 | 27.8 |
| Millenium | 43.0 | | | 61.8 | 8.2 | 13.1 | 28.0 |
| Morgan | 33.8 | 22.4 | 26.1 | 60.4 | 8.6 | 13.8 | 28.2 |
| Neeley | 39.3 | 26.9 | 30.4 | 59.8 | 8.7 | 13.8 | 28.6 |
| Norris (MTCL0316) | 37.4 | 23.6 | | 63.0 | 8.3 | 13.0 | 28.0 |
| NuSky | 33.6 | 21.3 | 25.6 | 61.0 | 9.3 | 13.7 | 26.6 |
| Paul | 32.3 | 21.3 | 29.0 | 59.3 | 8.9 | 14.1 | 24.4 |
| Promontory | 35.2 | 21.5 | 24.3 | 63.2 | 8.7 | 13.3 | 25.9 |
| Pryor | 35.0 | 21.5 | 31.0 | 61.4 | 8.7 | 12.8 | 21.7 |
| Rampart | 41.0 | 25.3 | 27.3 | 61.9 | 7.8 | 13.8 | 30.1 |
| Rocky | 39.4 | 24.8 | 25.7 | 62.8 | 8.4 | 12.6 | 30.4 |
| Tiber | 44.2 | 29.7 | 31.0 | 62.7 | 8.5 | 13.3 | 30.8 |
| Vanguard | 37.8 | 24.2 | 26.2 | 61.8 | 7.9 | 13.7 | 28.8 |
| Wahoo | 43.5 | 24.9 | 31.1 | 61.4 | 8.0 | 12.8 | 26.7 |
| Yellowstone | 38.7 | 23.2 | 28.4 | 60.7 | 9.0 | 12.5 | 26.9 |
| MT01148 | 41.0 | 27.4 | 31.5 | 61.2 | 8.4 | 13.5 | 26.4 |
| MT02113 | 43.2 | | | 61.0 | 8.5 | 12.3 | 29.1 |
| Average | 38.4 | 23.5 | 27.6 | 61.6 | 8.4 | 13.4 | 27.4 |
| PLSD (p=0.05) | ns | ns | ns | 0.9 | ns | - | 3.0 |
| CV% | 14.2 | 21.4 | 28.1 | 1.6 | 6.6 | - | 6.7 |

1/ Yields are based on a 60 pound standard bushel weight and adjusted to 13 percent moisture content.
2 Grain protein values determined from samples bulked across replications and 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).

Lodge Grass Dryland Winter Wheat (Exp. 063883)

| | |
|---|---|
| Planted: | October 17, 2005 |
| Harvested: | July 17, 2006 |
| Fertility: | 11-52-00, 100 lbs/a at planting |
| Herbicide: | Roundup Ultra, 16 oz/ac, October 24, 2005 |
| Previous crop: | chemical fallow |

Table 6. Performance of 24 winter wheat cultivars and experimental lines tested under no-till, dryland conditions near Fly Creek west of Hardin, Montana during 2006. Cultivars listed alphabetically. (Exp. 063884).

| Cultivar | Grain Yield 1/ 2006 | Grain Yield 1/ 2005-06 | Grain Yield 1/ 2004-06 | Test Weight | Grain Moisture | Grain Protein 2/ | Plant Height |
|---|---|---|---|---|---|---|---|
| | bushels/acre | | | lb/bu | % | % | inches |
| BigSky | 52.1 | 52.5 | 52.5 | 61.4 | 7.8 | 14.1 | 32.1 |
| Bynum (MTCL0318) | 53.8 | 49.9 | | 63.1 | 7.9 | 13.8 | 29.8 |
| CDC Falcon | 50.5 | 51.0 | 51.0 | 62.4 | 8.2 | 11.1 | 24.7 |
| Genou | 46.9 | 48.8 | 48.8 | 61.8 | 8.0 | 12.8 | 29.5 |
| Hyalite (MTCL0306) | 56.4 | 55.0 | | 62.7 | 8.0 | 13.2 | 29.4 |
| Jagalene | 55.9 | 59.3 | 59.3 | 64.3 | 8.2 | 12.6 | 28.3 |
| Jerry | 46.8 | 52.7 | 52.7 | 61.8 | 8.3 | 11.4 | 30.6 |
| Ledger | 54.9 | | | 63.1 | 8.3 | 11.3 | 25.5 |
| Millenium | 64.5 | | | 62.8 | 8.2 | 12.6 | 30.3 |
| Morgan | 54.2 | 50.4 | 50.4 | 62.4 | 8.0 | 12.0 | 30.2 |
| Neeley | 61.4 | 55.9 | 55.9 | 61.2 | 7.8 | 13.2 | 28.7 |
| Norris (MTCL0316) | 59.7 | 57.7 | | 63.2 | 7.9 | 11.1 | 31.1 |
| NuSky | 53.5 | 49.0 | 49.0 | 62.6 | 8.2 | 12.0 | 29.1 |
| Paul | 53.8 | 52.2 | 52.2 | 58.6 | 7.5 | 13.7 | 25.9 |
| Promontory | 51.3 | 51.6 | 51.6 | 63.7 | 8.0 | 12.6 | 28.2 |
| Pryor | 55.3 | 60.5 | 60.5 | 60.7 | 7.8 | 13.4 | 25.5 |
| Rampart | 49.4 | 48.3 | 48.3 | 62.4 | 8.0 | 12.8 | 29.9 |
| Rocky | 56.4 | 52.9 | 52.9 | 63.7 | 8.2 | 11.8 | 33.0 |
| Tiber | 54.6 | 50.8 | 50.8 | 63.0 | 8.1 | 11.3 | 32.3 |
| Vanguard | 47.6 | 47.5 | 47.5 | 62.0 | 7.9 | 13.4 | 29.8 |
| Wahoo | 59.3 | 59.6 | 59.6 | 61.1 | 8.0 | 12.0 | 28.5 |
| Yellowstone | 57.5 | 58.3 | 58.3 | 62.1 | 8.0 | 12.0 | 29.2 |
| MT01148 | 58.7 | 55.2 | 55.2 | 62.6 | 8.1 | 10.9 | 29.8 |
| MT02113 | 57.6 | | | 60.5 | 7.8 | 12.3 | 29.1 |
| Average | 54.7 | 53.3 | 53.1 | 62.2 | 8.0 | 12.4 | 29.2 |
| PLSD (p=0.05) | ns | ns | ns | 1.8 | ns | - | 2.6 |
| CV% | 11.8 | 14.3 | 15.1 | 1.7 | 3.5 | - | 5.4 |

1/ Yields are based on a 60 pound standard bushel weight and adjusted to 13 percent moisture content.
2/ Grain protein values determined from samples bulked across replications and 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).

Fly Creek Dryland Winter Wheat (Exp. 063884)

| | |
|---|---|
| Planted: | September 22, 2005 |
| Harvested: | July 17, 2006 |
| Fertility: | 11-52-00, 100 lbs/a at planting |
| Herbicide: | n/a |
| Previous crop: | chemical fallow |

Table 7. Performance of 24 winter wheat cultivars and experimental lines tested under conventional, dryland conditions near Molt, Montana during 2006. Cultivars listed alphabetically. (Exp. 063885).

| Cultivar | Grain Yield 1/ 2006 | Grain Yield 1/ 2005-06 | Test Weight | Grain Moisture | Grain Protein 2/ | Plant Height |
|---|---|---|---|---|---|---|
| | -------- bu/acre ------- | | lb/bu | % | % | inches |
| BigSky | 55.9 | 51.9 | 64.4 | 9.8 | 12.4 | 31.5 |
| Bynum (MTCL0318) | 52.7 | 48.6 | 64.0 | 9.1 | 13.3 | 28.9 |
| CDC Falcon | 61.6 | 54.9 | 63.9 | 9.0 | 11.2 | 25.0 |
| Genou | **74.0**** | **64.1*** | 64.6 | 9.1 | 11.8 | 31.9 |
| Hyalite (MTCL0306) | 54.0 | 48.7 | 63.9 | 9.4 | 12.5 | 29.8 |
| Jagalene | 54.6 | 51.0 | 65.2 | 9.7 | 12.3 | 27.0 |
| Jerry | 60.2 | 52.0 | 63.4 | 9.0 | 11.3 | 31.0 |
| Ledger | 58.0 | | 63.9 | 9.4 | 11.1 | 27.7 |
| Millenium | 53.7 | | 63.9 | 9.6 | 12.9 | 29.6 |
| Morgan | 61.0 | 53.4 | 62.6 | 10.2 | 12.5 | 32.0 |
| Neeley | **68.7*** | **62.8*** | 63.6 | 10.3 | 11.2 | 30.8 |
| Norris (MTCL0316) | 56.5 | 54.7 | 64.7 | 9.1 | 11.4 | 28.3 |
| NuSky | 57.5 | 54.0 | 62.8 | 10.9 | 12.2 | 32.3 |
| Paul | 63.5 | **58.9*** | 63.0 | 10.1 | 11.0 | 27.8 |
| Promontory | 54.7 | 53.9 | 64.8 | 9.8 | 11.6 | 30.3 |
| Pryor | 59.4 | 56.1 | 63.8 | 9.3 | 10.8 | 24.6 |
| Rampart | 59.6 | 53.4 | 64.1 | 8.8 | 13.0 | 30.2 |
| Rocky | 62.9 | 53.9 | 65.0 | 9.4 | 11.2 | 30.5 |
| Tiber | 61.1 | 57.3 | 64.1 | 9.6 | 12.0 | 30.6 |
| Vanguard | 54.1 | 51.5 | 64.1 | 9.0 | 12.2 | 30.9 |
| Wahoo | **70.2*** | **64.6**** | 63.6 | 9.2 | 11.9 | 28.3 |
| Yellowstone | 62.8 | 56.6 | 62.7 | 10.4 | 11.7 | 29.6 |
| MT01148 | 62.1 | **58.8*** | 63.0 | 11.1 | 12.0 | 29.9 |
| MT02113 | **64.2*** | | 62.5 | 10.3 | 11.8 | 30.7 |
| Average | 60.1 | 55.3 | 63.8 | 9.7 | 11.9 | 29.5 |
| PLSD (p=0.05) | 10.5 | 7.0 | 0.6 | 1.1 | - | 2.3 |
| CV% | 10.6 | 10.5 | 0.6 | 6.9 | - | 4.7 |

1/ Yields are based on a 60 pound standard bushel weight and adjusted to 13 percent moisture content.
2/ Grain protein values determined from samples bulked across replications and 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).

Molt Dryland Winter Wheat (Exp. 063885)

| | |
|---|---|
| Planted: | September 23, 2005 |
| Harvested: | July 19, 2006 |
| Fertility: | 11-52-00, 100 lbs/a at planting |
| Herbicide: | none |
| Previous crop: | conventional summer fallow |

Table 8. Grain yield[1/] of 24 winter wheat cultivars tested at six locations in south central Montana during 2006. Varieties listed by declining average yield across all locations.

| Cultivar | Rapelje Dryland | Forsyth Dryland [2/] | Lodge Grass Dryland | Hardin Dryland | Molt Dryland | Dryland Locations Average | Huntley Irrigated | All Locations Average |
|---|---|---|---|---|---|---|---|---|
| | bushels per acre | | | | | | | |
| Yellowstone | **84.0*** | -.- | 38.7 | 57.5 | 62.8 | **60.7*** | 134.9 | **75.6**** |
| MT02113 | **88.6**** | -.- | 43.2 | 57.6 | **64.2*** | **63.4**** | 122.8 | **75.3*** |
| Wahoo | **78.5*** | -.- | 43.5 | 59.3 | **70.2*** | **62.9*** | 124.5 | **75.2*** |
| Pryor | **85.7*** | -.- | 35.0 | 55.3 | 59.4 | **58.9*** | 131.2 | **73.3*** |
| MT01148 | 73.3 | -.- | 41.0 | 58.7 | 62.1 | **58.8*** | 125.8 | **72.2*** |
| Millenium | **79.1*** | -.- | 43.0 | 64.5 | 53.7 | **60.1*** | 115.0 | **71.0*** |
| Ledger | **77.4*** | -.- | 45.8 | 54.9 | 58.0 | **59.0*** | 118.1 | **70.9*** |
| Jagalene | **79.2*** | -.- | 38.3 | 55.9 | 54.6 | 57.0 | 120.7 | **69.8*** |
| Neeley | **76.7*** | **-.-** | 39.3 | 61.4 | **68.7*** | **61.5*** | 102.6 | **69.7*** |
| Genou | **78.7*** | -.- | 38.8 | 46.9 | **74.0**** | **59.6*** | 106.6 | **69.0*** |
| CDC Falcon | 71.0 | -.- | 38.5 | 50.5 | 61.6 | 55.4 | 121.3 | **68.6*** |
| Hyalite (MTCL0306) | **80.9*** | -.- | 33.9 | 56.4 | 54.0 | 56.3 | 117.0 | **68.5*** |
| Promontory | **80.1*** | -.- | 35.2 | 51.3 | 54.7 | 55.3 | 120.0 | **68.3*** |
| Norris (MTCL0316) | **82.4*** | -.- | 37.4 | 59.7 | 56.5 | **59.0*** | 102.2 | **67.6*** |
| Bynum (MTCL0318) | 66.9 | **-.-** | 37.8 | 53.8 | 52.7 | 52.8 | 114.2 | 65.1 |
| Paul | 75.2 | -.- | 32.3 | 53.8 | 63.5 | 56.2 | 100.6 | 65.1 |
| Tiber | 69.1 | -.- | 44.2 | 54.6 | 61.1 | **57.2*** | 95.9 | 65.0 |
| Morgan | 70.7 | -.- | 33.8 | 54.2 | 61.0 | 54.9 | 105.0 | 64.9 |
| NuSky | 70.3 | -.- | 33.6 | 53.5 | 57.5 | 53.7 | 105.5 | 64.1 |
| Rocky | 72.8 | -.- | 39.4 | 56.4 | 62.9 | **57.9*** | 86.9 | 63.7 |
| Jerry | 70.7 | -.- | 36.6 | 46.8 | 60.2 | 53.6 | 103.3 | 63.5 |
| Vanguard | 70.2 | -.- | 37.8 | 47.6 | 54.1 | 52.4 | 102.7 | 62.5 |
| BigSky | 70.2 | -.- | 33.7 | 52.1 | 55.9 | 53.0 | 99.7 | 62.3 |
| Rampart | 65.9 | -.- | 41.0 | 49.4 | 59.6 | 54.0 | 94.0 | 62.0 |
| Average | 75.7 | -.- | 38.4 | 54.7 | 60.1 | 57.2 | 111.3 | 68.0 |
| PLSD (p=0.05) | 12.2 | -.- | ns | ns | 10.5 | 6.3 | ns | 8.1 |
| CV% | 9.8 | -.- | 14.2 | 11.8 | 10.6 | 11.3 | 16.5 | 16.5 |

1/ Yields are based on a 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.
2/ Site not harvested in 2006 due to hail damage.
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 9. Performance of 24 winter wheat cultivars and experimental lines tested under dryland and irrigated conditions at 5 locations in south central Montana during 2006. Cultivars listed alphabetically.

| Cultivar | 1/ Grain Yield | | | Test Weight | Grain Moisture | 2/ Grain Protein | Plant Height |
|---|---|---|---|---|---|---|---|
| | 2006 | 2005-06 | 2004-06 | | | | |
| | ---------bushels per acre ---------- | | | lb/bu | % | % | inches |
| BigSky | 62.3 | 55.5 | 52.4 | 62.5 | 9.7 | 13.4 | 34.9 |
| Bynum (MTCL0318) | 65.1 | 54.3 | | 63.2 | 8.5 | 13.4 | 32.6 |
| CDC Falcon | **68.6*** | 56.1 | 55.7 | 62.6 | 8.6 | 11.9 | 27.9 |
| Genou | **69.0*** | 57.4 | 51.2 | 63.0 | 9.0 | 12.8 | 33.4 |
| Hyalite (MTCL0306) | **68.5*** | 57.3 | | 62.8 | 9.0 | 13.0 | 31.7 |
| Jagalene | **69.8*** | **61.0*** | 46.5 | 64.2 | 8.9 | 12.7 | 30.3 |
| Jerry | 63.5 | 56.8 | 55.5 | 61.9 | 8.8 | 12.4 | 34.2 |
| Ledger | **70.9*** | | | 62.8 | 9.5 | 11.7 | 29.6 |
| Millenium | **71.0*** | | | 62.8 | 9.0 | 12.6 | 33.6 |
| Morgan | 64.9 | 55.3 | 55.2 | 61.5 | 9.8 | 12.9 | 33.3 |
| Neeley | **69.7*** | **60.1*** | 58.5 | 61.0 | 10.2 | 12.8 | 33.4 |
| Norris (MTCL0316) | **67.6*** | 60.1 | | 63.3 | 9.2 | 12.3 | 33.3 |
| NuSky | 64.1 | 52.1 | 52.8 | 61.8 | 10.0 | 12.8 | 33.2 |
| Paul | 65.1 | 55.4 | 59.4 | 60.0 | 10.2 | 12.7 | 29.0 |
| Promontory | **68.3*** | 58.7 | 50.8 | 63.4 | 9.7 | 12.2 | 31.6 |
| Pryor | **73.3*** | **63.5*** | **68.4**** | 62.2 | 9.1 | 11.8 | 27.9 |
| Rampart | 62.0 | 52.8 | 46.2 | 62.8 | 8.8 | 13.3 | 33.8 |
| Rocky | 63.7 | 54.0 | 52.2 | 63.7 | 9.0 | 12.3 | 34.4 |
| Tiber | 65.0 | 55.6 | 54.3 | 61.9 | 10.4 | 12.3 | 34.5 |
| Vanguard | 62.5 | 55.2 | 48.8 | 62.6 | 9.2 | 13.3 | 33.6 |
| Wahoo | **75.2*** | **62.8*** | 55.6 | 61.7 | 8.7 | 12.4 | 30.6 |
| Yellowstone | **75.6**** | **65.2**** | **63.7*** | 61.3 | 9.9 | 12.0 | 31.6 |
| MT01148 | **72.2*** | **61.4*** | **61.8*** | 61.6 | 10.5 | 12.4 | 32.8 |
| MT02113 | **75.3*** | | | 60.6 | 10.2 | 12.2 | 32.8 |
| Average | 68.0 | 57.7 | 54.9 | 62.3 | 9.4 | 12.6 | 32.2 |
| PLSD (p=0.05) | 8.1 | 5.3 | 7.5 | 1.2 | 1.3 | 0.8 | 1.5 |
| CV% | 16.5 | 18.9 | 16.6 | 2.7 | 19.8 | 5.0 | 6.4 |
| Location Years | 5 | 11 | 15 | 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).

Table 10. Performance of 24 winter wheat cultivars and experimental lines tested under dryland conditions only in south central Montana during 2006. Cultivars listed alphabetically.

| Cultivar | Grain Yield 1/ 2006 | Grain Yield 1/ 2005-06 | Grain Yield 1/ 2004-06 | Test Weight | Grain Moisture | Grain Protein 2/ | Plant Height |
|---|---|---|---|---|---|---|---|
| | bushels/acre | | | lb/bu | % | % | inches |
| BigSky | 53.0 | 47.1 | 43.4 | 62.7 | 8.6 | 13.5 | 31.7 |
| Bynum (MTCL0318) | 52.8 | 44.9 | | 62.8 | 8.2 | 13.6 | 30.3 |
| CDC Falcon | 55.4 | 45.9 | 44.0 | 62.6 | 8.4 | 11.9 | 24.8 |
| Genou | **59.6*** | **50.0*** | 46.5 | 62.8 | 8.4 | 12.7 | 31.3 |
| Hyalite (MTCL0306) | 56.3 | 48.2 | | 62.8 | 8.6 | 13.3 | 29.6 |
| Jagalene | 57.0 | **50.6*** | 46.4 | 64.3 | 8.7 | 13.0 | 27.9 |
| Jerry | 53.6 | 48.3 | 46.3 | 61.9 | 8.4 | 12.5 | 31.7 |
| Ledger | **59.0*** | | | 63.2 | 8.5 | 11.7 | 27.8 |
| Millenium | **60.1*** | | | 63.0 | 8.7 | 12.8 | 30.6 |
| Morgan | 54.9 | 47.1 | 45.1 | 61.9 | 8.7 | 13.1 | 31.1 |
| Neeley | **61.5*** | **52.3*** | 48.8 | 61.5 | 8.8 | 13.1 | 30.3 |
| Norris (MTCL0316) | **59.0*** | **51.1*** | | 63.6 | 8.4 | 12.1 | 30.4 |
| NuSky | 53.7 | 45.6 | 43.4 | 62.2 | 9.2 | 13.1 | 30.7 |
| Paul | 56.2 | 48.9 | 47.0 | 60.6 | 8.7 | 12.9 | 27.1 |
| Promontory | 55.3 | 49.9 | 45.4 | 64.0 | 8.7 | 12.5 | 29.1 |
| Pryor | **58.9*** | **53.9*** | **53.0**** | 62.3 | 8.6 | 12.1 | 25.5 |
| Rampart | 54.0 | 45.6 | 42.1 | 62.7 | 8.2 | 13.4 | 31.3 |
| Rocky | **57.9*** | 47.8 | 45.1 | 63.7 | 8.6 | 12.2 | 32.2 |
| Tiber | **57.2*** | 49.2 | 46.9 | 63.3 | 8.6 | 12.3 | 32.2 |
| Vanguard | 52.4 | 45.8 | 42.1 | 62.7 | 8.3 | 13.3 | 31.3 |
| Wahoo | **62.9*** | **54.5**** | **51.2*** | 62.0 | 8.3 | 12.5 | 28.5 |
| Yellowstone | **60.7*** | **53.4*** | **51.1*** | 61.8 | 8.9 | 12.3 | 29.4 |
| MT01148 | **58.8*** | **51.4*** | 49.1 | 62.4 | 9.0 | 12.5 | 30.0 |
| MT02113 | **63.4**** | | | 61.4 | 8.7 | 12.4 | 30.6 |
| Average | 57.2 | 49.1 | 46.5 | 62.6 | 8.6 | 12.7 | 29.8 |
| PLSD (p=0.05) | 6.3 | 4.5 | 3.8 | 0.8 | 0.5 | 0.8 | 1.4 |
| CV% | 11.3 | 17.2 | 17.7 | 1.5 | 6.9 | 4.7 | 5.8 |
| Location Years | 4 | 9 | 12 | 4 | 4 | 4 | 4 |

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).