

## RESULTS OF AGRONOMIC AND WEED SCIENCE RESEARCH CONDUCTED IN SOUTH CENTRAL MONTANA - 2015

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

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

- PROJECT TITLE:** Off-Station Spring Wheat Variety Performance Trials in South Central Montana. This research is partially supported by the Montana Wheat and Wheat Committee.
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- OBJECTIVES:** To provide growers in south central Montana with a reliable, unbiased, up-to-date source of information that will permit valid comparisons among improved spring wheat varieties. This information should help spring wheat producers in south central Montana select varieties best suited to their particular area and growing conditions.
- METHODS:** The 2015 off-station spring wheat trials in south central Montana were established under dryland conditions near Broadview and Hardin, and under irrigated conditions near Fromberg and Hysham, Montana (Figure 1). The spring wheat trials for this region of Montana each possessed 25 entries made up of 20 commercial cultivars and 5 experimental lines.

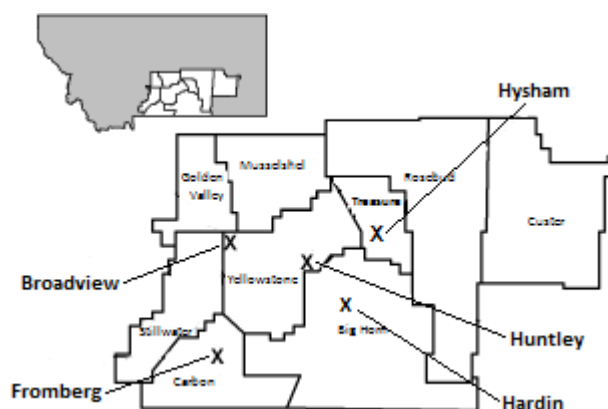


Figure 1. 2015 off-station spring wheat trial locations in south central Montana.

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). Seeding rates were not adjusted for germination. Information pertaining to the traits and characteristics of the commercial spring wheat cultivars are provided in Table 1.

Dryland test plots consisted of a 15-foot, 4-row plot with 12-inch row spacing, while irrigated plots were 15-foot, 7-row 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 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 Huntley, Fromberg and Hysham, representing no lodging to all stems lying flat on the ground, respectively.

## **RESULTS:**

The 2015 spring wheat test sites had below average rain or snow accumulation during winter months except in January. Precipitation during winter months provided adequate soil moisture for spring wheat planting and emergence. Below-average precipitation in the spring resulted in early season drought stress at all test sites that accelerated wheat growth and caused early maturity. Rain shower in May and June provided the much needed moisture for wheat production. However, spring wheat never recovered from early drought stress that resulted in earliest spring wheat harvest in south eastern Montana. Spring wheat crop at Hardin was not harvested due to poor stand (10-15%).

Dryland spring wheat yield at Broadview averaged 27 bu/a in 2015 (Table 2) three bu/a less than the previous year. Lower yield at this location this year was mainly attributed to early season drought stress. 'Brennan' was the highest yielding cultivar with 31 bu/a. Twelve other entries have the yields, ranged from 27 to 30 bu/a, statistically equal to that of highest yielding entry. Spring wheat test weights averaged 59.8 lb/bu and ranged from 56.6 to 61.7 lb/bu. Grain protein averaged 13.1 percent, varying from 12.0 for 'Vida' to 14.3 percent for 'Egan'. Averaged yield over the past two- and three-year was 29 and 26 bu/a respectively at Broadview.

No lodging was observed for most commercial cultivars under irrigation at Hysham in 2015. 'Fortuna' and "Mott" were the only cultivar exhibited marginal lodging (Table 3). Average yield at Hysham was 80 bu/a, about 24 bu/a less than the last year. Lower yield at this location this year was mainly attributed to drought stress early in the spring. Yield ranged from 69 bu/a for Egan to 92 bu/a for 'SY Tera'. Twelve other entries produced yield ranged from 80 to 91 bu/a, statistically equal to the yield of SY Tera. Test weight was excellent averaging 62.2 lb/bu, and ranged from 59.1 lb/bu for 'MT 1337' to 63.6 for WPSP2-VIDA1'. Grain protein levels was low and averaged only 10.2 percent. All entries have protein content less than 12 percent. At Hysham, average yield over the past two- and three-year was 91 and 95 bu/a respectively.

Little or no lodging was also observed for most commercial cultivars under irrigation at Fromberg in 2015 (Table 4). Cultivar Fortuna exhibited moderately high lodging (7.8 out of 9) that significantly reduced its yield. The yield at Fromberg in 2015 averaged 98 bu/a about the same as last year. This location produced the highest grain yield among all test sites in 2015. Grain yield ranged from 67 bu/a for Fortuna to 113 bu/a for 'HRS 3419'. Brennan, 'Duclair' and 'SY Soren' produced yield ranged from 105 to 107 bu/a, statistically equal to the highest yielding cultivars. Test weight averaged 61.0 lb/bu and ranged from 59.2 to 62.8 lb/bu. Grain protein levels averaged 12.6 percent and ranged from 11.6 for SY Tera to

14.3 percent for Fortuna. Over the past three years average yield have been fairly stable at Fromberg. Two- and Three-year average yield for spring wheat varieties tested during 2013 - 2015, was 96 and 98 bu/a respectively. The commercial entry Duclair was the best performing cultivar over the past Two- and Three-year averaging a grain yield of 106 and 108 bu/a respectively.

**SUMMARY:**

Below-average precipitation in the spring caused early season drought stress that resulted in earliest spring wheat harvest in south eastern Montana. In 2015, SY Tera was the highest yielding cultivar averaging 74 bu/a, closely followed by cultivars Brennan, Duclair and 'Vida' with average yield of 73 bu/a, across all locations tested in south central Montana (Tables 5). Brennan exhibited highest average yield under dryland condition (one dryland site in 2015). 'Solana' and Vida was the top yielding cultivar under irrigated condition over the past two- and three-years respectively (Table 7). Long-term productivity based on last two and three years average yield across all locations were also highest for Solana and Vida (Table 6). Across all locations for the past three years, six other entries produced yields ranged from 66 to 70 bu/a, which was statistically equal to the yield of Vida. Averaged across locations grain protein content was 11.9 percent. Overall test weight averaged 61.0 lb/bu (Table 6), while averaged 61.6 lb/bu across irrigated locations (Table 7).

Table 1. Selected characteristics and traits of commercial spring wheat cultivars performance tested at three off-station sites in south central Montana during 2015.

Cultivar	Origin	Year 1/ of Release	2/ Market Class	3/ PVP Yes/No	4/ Maturity	5/ Straw Strength	6/ Disease Resistance						7/ Insect Resistance				8/ Clearfield Type Yes/No
							Fusarium			Wheat Stem Sawfly	Russian		Hessian		Quality		
							Head Blight (Scab)	Leaf Rust	Stem Rust		Stripe Rust	Wheat Aphid	Fly (GP)	Milling	Baking		
												1-5	1-5				
Brennan	Syngenta	2009	HRS	Y	E	S	MR	R	R	S	S	S	S	-	-	N	
Choteau	MSU	2003	HRS	Y	E-M	VS	S	-	R	S	R	S	S	4	4	N	
Corbin	WestBred	2006	HRS	Y	E	MS	S	-	-	R	R	S	-	3	3	N	
Duclair	MSU	2011	HRS	Y	E-M	S	-	-	MR	MR	-	-	-	-	-	N	
Egan	MSU	2014	HRS	Y	-	-	-	-	-	MR	-	S	-	-	-	N	
Fortuna	NDSU	1966	HRS	N	E	MW	S	R	R	VS	R	S	S	5	4	N	
Jedd	WestBred	2008	HRS	Y	E-M	S	S	-	-	MS	S	S	R	3	3	Y	
Kelby	AgriPro	2006	HRS	Y	M	MS	MR	MR	R	-	S	S	-	3	3	N	
McNeal	MSU	1995	HRS	N	M	S	S	MS	MR	VS	S	S	S	3	5	N	
Mott	NDSU	2009	HRS	Y	M-L	-	S	MS	MR	-	R	-	-	4	4	N	
Oneal	WestBred	2008	HRS	Y	M	S	S	-	-	S	MS	S	-	3	3	N	
Reeder	NDSU	1999	HRS	Y	M-L	S	MS	MR	R	MR	S	S	S	3	3	N	
Solano	WestBred	2007	HRS	Y	-	-	-	MR	MR	MR	-	-	-	-	-	N	
SY Soren	Syngenta	2011	HRS	Y	E-M	S	MR	MR	R	-	-	-	-	-	-	N	
SY Tyra	Syngenta	2011	HRS	Y	M	M	S	R	R	MR	MR	-	-	-	-	N	
Vida	MSU	2006	HRS	Y	M-L	S	S	-	MS	MR	MS	S	S	4	4	N	
WB																	
Gunnison	WestBred	2010	HRS	Y	-	-	-	-	-	-	MR	-	-	-	-	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 2. Performance of 25 spring wheat cultivars tested under no-till, dryland conditions near Broadview, Montana during 2015. Cultivars listed alphabetically. (Exp. 159995).

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain Protein	Plant Height
	2015	2014-15	2013-15				
	----- bushels/acre -----			lb/bu	%	%	inches
<u>Commercial</u>							
Brennan	<b>31.0**</b>	32.0		61.6	9.2	13.7	26.2
Choteau	26.6	27.7	25.1	60.7	9.3	13.0	26.4
Corbin	24.6	27.1	24.9	59.5	9.3	13.1	28.5
Duclair	<b>28.7*</b>	29.5	27.2	59.3	9.1	12.8	28.7
Egan	<b>28.0*</b>	28.4		58.0	8.9	14.3	29.0
Fortuna	24.2	27.5	25.2	58.7	9.4	12.9	35.7
HRS 3361	25.7			58.6	9.0	13.1	28.9
HRS 3419	22.2			56.9	9.0	14.0	28.5
HRS 3504	24.2			57.4	8.9	12.7	26.4
HRS 3530	26.9			60.3	9.4	13.6	31.5
McNeal	<b>27.0*</b>	28.3	25.7	59.3	9.2	12.9	31.2
Mott	<b>29.4*</b>	28.8	25.7	60.4	9.3	13.3	29.4
Oneal	25.2	27.8	25.9	60.6	9.6	12.9	29.1
Reeder	24.7	28.0	27.8	61.0	9.2	12.7	27.4
Solano	25.5	27.3	24.1	59.7	9.3	13.0	23.5
SY Soren	25.8			59.8	9.1	13.6	26.2
SY Tyra	<b>27.6*</b>			61.0	9.5	12.9	26.5
Vida	<b>28.7*</b>	30.1	27.7	60.9	9.5	12.0	30.4
WB Gunnison	<b>27.6*</b>	29.3	27.4	59.6	9.2	13.0	27.8
WB9879CLP	<b>30.3*</b>			59.6	9.0	14.0	28.1
WPSP2-VIDA1	<b>27.8*</b>			59.4	9.4	12.3	28.9
<u>Experimental</u>							
MT 1219	<b>27.1*</b>			59.3	9.1	12.6	27.0
MT 1316	<b>29.9*</b>			60.1	9.2	12.2	28.3
MT 1337	<b>29.7*</b>			60.6	9.1	13.0	29.0
MT 1338	26.7			61.7	9.5	13.0	27.0
Average	27.0	28.6	26.1	59.8	9.2	13.1	28.4
PLSD (p=0.05)	4.0	ns	ns	1.6	0.3	1.3	2.3
CV%	9.0	11.7	12.5	1.5	1.8	5.4	5.0

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

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

\*\* 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)

Broadview Dryland Spring Wheat (Exp. 159995)

Planted: April 14, 2015  
Harvested: July 31, 2015  
Fertility: n/a  
Herbicide: na  
Insecticide: none applied  
Previous Crop: fallow  
Precipitation: n/a

Table 3. Performance of 25 spring wheat cultivars tested under irrigation near Hysham during 2015. Cultivars listed alphabetically. (Exp. 159996).

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain		Plant Height	Lodging
	2015	2014-15	2013-15			Protein	Plant		
	----- bushels/acre -----					lb/bu	%		
<u>Commercial</u>									
Brennan	<b>79.8*</b>	91.8		63.4	10.0	10.8	34.5	0.0	
Choteau	<b>82.4*</b>	99.7	102.1	62.6	10.4	10.0	34.4	0.0	
Corbin	<b>82.7*</b>	88.6	91.5	62.4	10.2	9.9	33.7	0.0	
Duclair	<b>85.5*</b>	95.7	100.8	62.2	10.2	10.0	36.6	0.0	
Egan	69.1	81.1		62.0	9.9	11.8	35.3	0.0	
Fortuna	72.1	81.0	77.8	62.9	10.4	10.2	44.1	1.0	
HRS 3361	<b>83.3*</b>			59.9	9.7	10.5	36.1	0.0	
HRS 3419	77.8			61.6	10.1	9.0	32.8	0.0	
HRS 3504	<b>85.9*</b>			60.8	9.9	9.7	32.4	0.0	
HRS 3530	76.8			62.5	10.3	10.1	38.2	0.0	
McNeal	74.0	92.0	96.0	61.2	10.0	10.4	36.4	0.0	
Mott	<b>80.6*</b>	84.0	93.2	61.4	10.0	10.3	39.9	0.3	
Oneal	75.4	84.4	92.8	62.8	10.3	9.7	35.8	0.0	
Reeder	75.8	90.6	96.7	63.3	10.1	10.0	36.9	0.0	
Solano	<b>88.0*</b>	100.8	92.7	63.0	9.9	10.8	27.6	0.0	
SY Soren	78.7			63.5	10.1	10.3	31.9	0.0	
SY Tyra	<b>91.8**</b>			61.2	10.2	9.9	32.8	0.0	
Vida	<b>90.7*</b>	95.6	102.1	61.7	10.2	10.3	37.3	0.0	
WB Gunnison	<b>87.5*</b>	95.7	98.6	63.0	10.1	10.5	32.3	0.0	
WB9879CLP	75.0			61.1	10.3	9.9	33.1	0.0	
WPSP2-VIDA1	77.2			63.6	10.4	9.4	36.4	0.0	
<u>Experimental</u>									
MT 1219	<b>84.5*</b>			62.9	10.1	9.8	32.2	0.0	
MT 1316	<b>83.0*</b>			62.6	9.9	10.4	34.0	0.0	
MT 1337	76.2			59.1	10.0	10.9	35.6	0.0	
MT 1338	78.9			63.6	10.4	10.2	34.1	0.0	
Average	80.5	90.8	94.9	62.2	10.1	10.2	35.0	0.1	
PLSD (p=0.05)	12.1	ns	ns	1.9	0.2	0.7	3.7	0.4	
CV%	9.2	7.3	7.4	1.8	1.4	4.2	5.9	439.7	

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

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

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

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

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

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

Hysham Irrigated Spring Wheat (Exp. 159996)

Planted:	March 26, 2015
Harvested:	August 13, 2015
Fertility:	60 lb N/a preplant, 70 lb/a 11-52-0 at planting; 140 lb N/a top dress in spring
Herbicide:	none
Previous Crop:	n/a
Irrigation:	flood
Precipitation:	n/a

Table 4. Performance of 25 spring wheat cultivars tested under irrigation near Fromberg, Montana during 2015. Cultivars listed alphabetically. (Exp. 159997).

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain		Plant Height	Lodging
	2015	2014-15	2013-15			Protein	Plant		
	----- bushels/acre -----			lb/bu	%	%	inches	0-9	
<u>Commercial</u>									
Brennan	<b>107.2*</b>	<b>103.7*</b>		62.5	12.8	13.2	36.5	2.0	
Choteau	98.5	<b>100.6*</b>	<b>103.4*</b>	61.0	12.9	12.9	38.1	0.7	
Corbin	96.0	<b>100.0*</b>	<b>100.0*</b>	59.8	12.8	12.5	38.0	1.8	
Duclair	<b>105.2*</b>	<b>106.3**</b>	<b>108.1**</b>	61.5	12.7	11.7	40.4	0.3	
Egan	86.1	90.4		61.5	12.5	13.8	41.3	0.7	
Fortuna	66.5	77.0	81.4	59.9	13.2	14.3	46.2	7.8	
HRS 3361	93.1			60.2	12.9	12.5	40.3	0.2	
HRS 3419	<b>112.6**</b>			60.6	12.8	12.1	38.9	0.3	
HRS 3504	99.1			59.2	12.3	12.2	36.7	0.2	
HRS 3530	100.5			61.0	12.8	12.6	44.5	0.0	
McNeal	88.3	<b>97.1*</b>	96.2	61.1	12.3	12.4	42.4	0.5	
Mott	92.0	92.5	<b>98.8*</b>	62.0	13.3	12.2	44.8	0.0	
Oneal	89.9	90.8	95.8	59.7	12.4	12.0	40.5	0.2	
Reeder	92.2	<b>97.4*</b>	<b>99.1*</b>	61.4	12.5	13.1	42.1	0.0	
Solano	100.7	<b>102.0*</b>	<b>97.6*</b>	61.6	12.7	12.0	30.4	0.0	
SY Soren	<b>107.3*</b>			62.1	12.6	12.9	35.7	1.9	
SY Tyra	103.2			60.4	12.6	11.6	34.4	0.4	
Vida	98.8	<b>100.8*</b>	<b>102.0*</b>	60.1	12.1	12.5	38.8	0.3	
WB Gunnison	86.4	93.0	94.5	60.2	12.8	13.3	36.6	3.5	
WB9879CLP	103.6			61.7	12.9	12.7	39.4	1.2	
WPSP2-VIDA1	100.5			61.3	12.7	12.2	41.1	0.9	
<u>Experimental</u>									
MT 1219	103.9			60.2	12.5	12.1	38.2	2.0	
MT 1316	100.4			60.8	12.4	12.3	37.7	0.7	
MT 1337	<b>108.2*</b>			61.7	12.1	13.2	40.3	1.0	
MT 1338	103.2			62.8	12.9	12.6	39.8	0.2	
Average	97.7	96.3	97.9	61.0	12.7	12.6	39.3	1.1	
PLSD (p=0.05)	7.5	11.6	10.6	1.0	0.9	0.8	1.8	1.0	
CV%	4.7	4.6	5.6	1.0	4.2	3.6	2.6	52.0	

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

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

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

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

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

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

Fromberg Irrigated Spring Wheat (Exp. 159997)

Planted:	March 26, 2015
Harvested:	August 15, 2015
Fertility:	100 lb N/a preplant; 120 lb N/a top dress in May, 2015
Herbicide:	n/a
Previous Crop:	n/a
Irrigation:	overhead sprinkler
Precipitation:	n/a

Table 5. Grain yield<sup>1/</sup> of 25 spring wheat cultivars tested at three-locations in south central Montana during 2015. Varieties listed by declining three-location average yield.

Cultivar	Dryland		Irrigated		Three
	Broadview	Hysham	Fromberg	Ave.	Location Average
	----- bushels/acre -----				
SY Tyra	<b>27.6*</b>	<b>91.8**</b>	103.2	97.5	<b>74.2**</b>
Duclair	<b>28.7*</b>	<b>85.5*</b>	<b>105.2*</b>	95.4	<b>73.1*</b>
Vida	<b>28.7*</b>	<b>90.7*</b>	98.8	94.8	<b>72.7*</b>
Brennan	<b>31.0**</b>	<b>79.8*</b>	<b>107.2*</b>	93.5	<b>72.7*</b>
MT 1219	<b>27.1*</b>	<b>84.5*</b>	103.9	94.2	<b>71.8*</b>
Solano	25.5	<b>88.0*</b>	100.7	94.3	<b>71.4*</b>
MT 1337	<b>29.7*</b>	76.2	<b>108.2*</b>	92.2	<b>71.3*</b>
MT 1316	<b>29.9*</b>	<b>83.0*</b>	100.4	91.7	<b>71.1*</b>
HRS 3419	22.2	77.8	<b>112.6**</b>	95.2	<b>70.9*</b>
SY Soren	25.8	78.7	<b>107.3*</b>	93.0	<b>70.6*</b>
HRS 3504	24.2	<b>85.9*</b>	99.1	92.5	<b>69.7*</b>
WB9879CLP	<b>30.3*</b>	75.0	103.6	89.3	<b>69.6*</b>
MT 1338	26.7	78.9	103.2	91.0	<b>69.6*</b>
Choteau	26.6	<b>82.4*</b>	98.5	90.5	<b>69.2*</b>
WPSP2-VIDA1	<b>27.8*</b>	77.2	100.5	88.8	<b>68.5*</b>
HRS 3530	26.9	76.8	100.5	88.6	<b>68.0*</b>
Corbin	24.6	<b>82.7*</b>	96.0	89.4	<b>67.8*</b>
HRS 3361	25.7	<b>83.3*</b>	93.1	88.2	<b>67.4*</b>
Mott	<b>29.4*</b>	<b>80.6*</b>	92.0	86.3	<b>67.3*</b>
WB Gunnison	<b>27.6*</b>	<b>87.5*</b>	86.4	87.0	<b>67.2*</b>
Reeder	24.7	75.8	92.2	84.0	64.2
Oneal	25.2	75.4	89.9	82.7	63.5
McNeal	<b>27.0*</b>	74.0	88.3	81.2	63.1
Egan	<b>28.0*</b>	69.1	86.1	77.6	61.1
Fortuna	24.2	72.1	66.5	69.3	54.3
Average	27.0	80.5	97.7	89.1	68.4
PLSD (p=0.05)	4.0	12.1	7.5	ns	9.8
CV%	9.0	9.2	4.7	6.9	7.6

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

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

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

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

Table 6. Performance of 25 spring wheat cultivars tested under both dryland and irrigated conditions at three locations in south central Montana during 2015. Cultivars listed alphabetically.

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain Protein	Plant Height
	2015	2014-15	2013-15				
	----- bushels/acre -----			lb/bu	%	%	inches
<u>Commercial</u>							
Brennan	<b>72.7*</b>	<b>69.4*</b>		62.5	10.7	12.7	32.3
Choteau	<b>69.2*</b>	<b>67.1*</b>	<b>68.0*</b>	61.6	10.9	11.9	32.9
Corbin	<b>67.8*</b>	64.4	64.8	60.5	10.7	11.9	33.4
Duclair	<b>73.1*</b>	<b>70.1*</b>	<b>69.9*</b>	60.9	10.7	11.5	35.1
Egan	61.1	63.9		60.7	10.4	13.4	35.3
Fortuna	54.3	58	57.6	60.5	11.0	12.4	42.1
HRS 3361	<b>67.4*</b>			59.6	10.5	12.1	35.0
HRS 3419	<b>70.9*</b>			59.7	10.6	11.5	33.4
HRS 3504	<b>69.7*</b>			59.1	10.4	11.4	31.8
HRS 3530	<b>68.0*</b>			61.3	10.8	12.0	38.0
McNeal	63.1	64.6	64	60.5	10.5	12.0	36.6
Mott	<b>67.3*</b>	62.6	<b>65.6*</b>	61.1	10.8	12.1	37.8
Oneal	63.5	56.4	62.1	60.9	10.8	11.5	35.3
Reeder	64.2	<b>66.9*</b>	<b>67.7*</b>	61.9	10.6	12.1	35.4
Solano	<b>71.4*</b>	<b>71.5**</b>	<b>66.1*</b>	61.4	10.6	11.9	27.3
SY Soren	<b>70.6*</b>			61.6	10.6	12.2	31.3
SY Tyra	<b>74.2**</b>			61.0	10.8	11.5	31.5
Vida	<b>72.7*</b>	<b>69.3*</b>	<b>70.8**</b>	60.9	10.6	11.7	35.5
WB Gunnison	<b>67.2*</b>	<b>67.0*</b>	<b>67.2*</b>	61.0	10.7	12.2	32.3
WB9879CLP	<b>69.6*</b>			61.0	10.8	12.1	33.7
WPSP2-VIDA1	<b>68.5*</b>			61.5	10.9	11.1	35.5
<u>Experimental</u>							
MT 1219	<b>71.8*</b>			60.8	10.6	11.5	32.4
MT 1316	<b>71.1*</b>			61.0	10.5	11.7	33.4
MT 1337	<b>71.3*</b>			60.6	10.4	12.3	34.9
MT 1338	<b>69.6*</b>			62.7	10.9	11.9	33.7
Average	68.4	65.5	65.8	61	10.7	11.9	34.2
PLSD (p=0.05)	9.8	6.1	5.5	1.5	0.3	0.7	1.9
CV%	7.6	7.4	9.3	1.7	3.2	5.5	4.7
Location Years	3	9	13	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.

\*\* 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 7. Performance of 25 spring wheat cultivars tested under irrigated conditions only in south central Montana during 2015. Cultivars listed alphabetically.

Cultivar	1/ Grain Yield			Test Weight	Grain Moisture	2/ Grain		Plant Height	Lodging
	2015	2014-15	2013-15			Protein	Plant		
	----- bushels/acre -----					lb/bu	%		
<u>Commercial</u>									
Brennan	93.5	<b>95.1*</b>		63.0	11.4	12.0	35.3	1.0	
Choteau	90.5	<b>94.7*</b>	<b>95.5*</b>	61.8	11.6	11.5	36.2	0.5	
Corbin	89.4	89.5	<b>89.1*</b>	61.1	11.5	11.2	35.8	1.0	
Duclair	95.4	<b>97.5*</b>	<b>96.0*</b>	61.8	11.5	10.9	38.3	0.3	
Egan	77.6	85.3		62.0	11.2	12.8	38.4	0.2	
Fortuna	69.3	76.5	75.6	61.3	11.8	12.2	45.3	4.3	
HRS 3361	88.2			60.3	11.3	11.5	38.1	0.0	
HRS 3419	95.2			61.1	11.4	10.6	35.9	0.0	
HRS 3504	92.5			59.8	11.1	11.0	34.4	0.0	
HRS 3530	88.6			61.9	11.6	11.3	41.2	0.0	
McNeal	81.2	<b>91.0*</b>	<b>88.9*</b>	61.2	11.1	11.4	39.2	0.2	
Mott	86.3	85.4	<b>90.9*</b>	61.7	11.6	11.2	42.0	0.2	
Oneal	82.7	78.8	85.8	61.1	11.4	10.8	38.3	0.2	
Reeder	84.0	<b>93.8*</b>	<b>93.5*</b>	62.4	11.3	11.5	39.4	0.0	
Solano	94.3	<b>99.5**</b>	<b>90.8*</b>	62.3	11.3	11.4	29.2	0.0	
SY Soren	93.0			62.6	11.3	11.6	33.9	0.8	
SY Tyra	97.5			60.9	11.4	10.7	33.9	0.2	
Vida	94.8	<b>94.5*</b>	<b>96.4**</b>	61.0	11.1	11.4	38.0	0.2	
WB Gunnison	87.0	<b>92.7*</b>	<b>91.6*</b>	61.7	11.5	11.9	34.5	1.7	
WB9879CLP	89.3			61.5	11.6	11.3	36.5	0.5	
WPSP2-VIDA1	88.8			62.5	11.6	10.8	38.8	0.5	
<u>Experimental</u>									
MT 1219	94.2			61.4	11.3	10.9	35.1	1.0	
MT 1316	91.7			61.7	11.2	11.3	36.0	0.3	
MT 1337	92.2			60.4	11.0	12.1	37.8	0.5	
MT 1338	91.0			63.1	11.7	11.4	37.1	0.2	
Average	89.1	90.3	90.4	61.6	11.4	11.4	37.1	0.5	
PLSD (p=0.05)	ns	8.9	8.6	ns	ns	0.8	2.1	ns	
CV%	6.9	6.5	8.3	1.6	3.4	3.9	4.6	99.3	
Location Years	2	4	6	2	2	2	2	2	

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

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

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).