RESULTS OF AGRONOMIC AND WEED SCIENCE RESEARCH CONDUCTED IN SOUTH CENTRAL MONTANA - 2019

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 Barley 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 2019 off-station spring wheat trials in south central Montana were established under dryland conditions near Broadview and Huntley, and under irrigated conditions near Huntley, Fromberg and Hysham, Montana (Figure 1). The spring wheat trials for this region of Montana each possessed 25 entries made up of 21 commercial cultivars and 4 experimental lines.

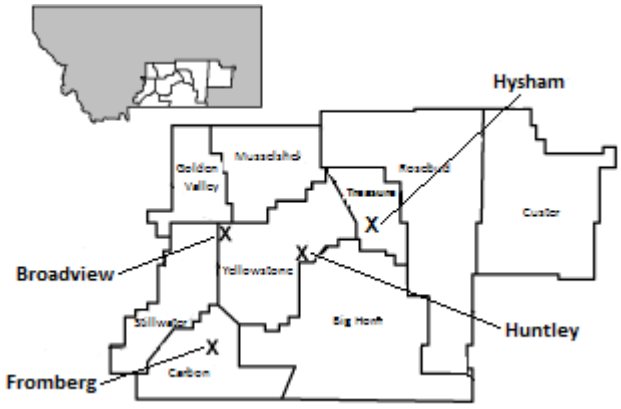

Figure 1. 2019 off-station spring wheat trial locations in south central Montana.

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.

Dryland test plots consisted of a 16-foot, 4-row plot with 12-inch row spacing, while irrigated plots were 16-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 2019 spring wheat test sites had below average rain or snow accumulation during winter months except in February. Precipitation in April provided much needed moisture for planting of spring wheat. Adequate soil moisture at spring wheat planting and emergence resulted in good stand establishment. Above average rainfall from April to August resulted in an excellent spring wheat crop. However, in August widespread thunderstorm and severe hail storm occurred near Huntley that resulted in 100 percent crop loss.

Dryland spring wheat yield at Broadview averaged 63 bu/a in 2019 (Table 1), substantially higher compared to last year's average yield of 31 bu/a. This location usually suffers with drought stress that limits the spring wheat yield. However, above-average precipitation this year contributed to higher yield at this location. 'MT1651' was the highest yielding experimental line with 78 bu/a. 'Vida' was the highest yielding commercial cultivar and has yield statistically equal to MT1651. Test weight averaged 60.9 lb/bu and ranged from 58.2 lb/bu for 'Alum' to 63.9 lb/bu for 'Brennan'. Grain protein content was excellent and averaged 14.7 percent. All entries at this location have protein content above 13 percent. Averaged yield over the past two and three-years was 47 and 37 bu/a respectively. 'NS presser' was the highest yielding cultivar averaged over the last three years producing 42 bu/a followed by Vida, 'Lanning', 'Reeder', and 'SY Ingmar'.

Lodging was observed for most entries under irrigation at Hysham in 2019 (Table 2) that ranged from a score of 1.5 for 'Solano' to 7.4 for 'Egan'. Relatively higher lodging caused yield reduction compared to previous years. Grain yield at Hysham averaged only 63 bu/a about 20 bu/a less than the trial average last year. Yield ranged from 44 bu/a for 'Fortuna' to 84 bu/a for Solano. 'WB9668' produced yield of 78 bu/a, statistically equal to the yield of highest yielding cultivar. Test weight averaged 60.0 lb/bu, and ranged from 57.4 to 62.5 lb/bu. Grain protein was high averaging 15.5 percent and all entries had protein content above 14 percent. Over the past three years average yield has been depressed at Hysham due to adverse weather conditions that delayed planting and/or harvesting operations. Average yield, over the past two and three years was 73 and 89 bu/a respectively.

Limited lodging was observed under irrigation at Fromberg in 2019 (Table 3). Fortuna exhibited highest lodging score of 4.3 out of 9. The yield at Fromberg averaged 96 bu/a about 11 bu/a higher than last year. Grain yield ranged from 80 bu/a for Fortuna to 108 bu/a for Vida. Eight other entries yielded statistically equal to the highest yielding cultivar. Test weight averaged 63.0 lb/bu and all entries produced test weight over 60 lb/bu at Fromberg. Grain protein content averaged 14.7 percent and all entries have protein content above 13 percent. Two and three year average yield for spring wheat varieties tested at Fromberg was 89 and 94 bu/a respectively.

SUMMARY:

Above average precipitation at planting and during grain filling period coupled with slightly cooler than normal temperatures boosted yield at some spring wheat trial locations. A severe hailstorm August 11 at Huntley resulted in 100 percent crop loss. In 2019, experimental line 'MT1621' was the highest yielding entry, averaging 83.8 bu/a, across all locations tested in south central Montana closely followed by the commercial cultivar Solana which averaged 80.9 bu/a, (Tables 4 and 6). MT 1621 was the top yielding experimental line under irrigated condition for the past two-years (2018-2019) followed by commercial cultivars Vida and 'WB9879 CLP'. SY Ingmar was the top yielding commercial cultivar under irrigated condition over the past three years (Table 5). Across all locations for the past three years, Vida, Lanning, SY Ingmar, WB9879 CLP, and Solano were the top yielding commercial cultivars. Averaged across locations grain protein content was 14.9 percent. Test weight averaged 61.3 lb/bu over all locations (Table 6), and averaged 61.5 lb/bu across irrigated locations (Table 5).

Table 1. Performance of 25 spring wheat cultivars tested under no-till, dryland conditions near Broadview, Montana during 2019. Cultivars listed alphabetically. (Exp. 199995).

1/ Cultivar	2/ Grain Yield			Test Weight	Grain Moisture	3/ Grain Protein	Plant Height
	2019	2018-19	2017-19	lb/bu	%	%	inches
	------- bushels/acre -------						
Commercial							
Alum	59.9	45.1	36.0	58.2	10.6	13.9	38.8
Brennan	65.0	45.7	36.3	63.9	10.7	14.8	34.8
Choteau	65.4	46.5	37.0	60.4	10.6	14.8	36.9
Corbin	60.9	47.7	37.3	60.6	10.6	14.9	38.1
CP3939	63.5			60.8	10.7	14.8	36.0
Duclair	68.0	48.2	37.6	60.3	10.7	14.1	36.7
Egan	63.5	44.3	34.4	58.5	10.3	16.2	38.1
Fortuna	51.1	41.8		60.0	10.8	14.3	46.3
Lanning	67.3	49.6	**39.2***	60.6	10.4	14.8	35.8
LCS Pro	62.4	45.6	36.3	61.3	11.0	14.2	38.7
NS Presser	68.1	50.8	**41.6****	58.3	10.3	15.0	39.0
Reeder	64.4	47.7	**38.6***	62.1	10.7	13.8	39.9
Solano	62.0	47.1	36.6	62.7	10.4	14.2	31.0
SY 605	59.6	44.6	35.5	62.7	10.8	15.2	39.6
SY Ingmar	62.9	48.5	**38.4***	62.6	10.8	15.1	36.0
SY Soren	62.0	44.7	36.1	62.5	10.7	14.4	34.6
Vida	**70.9***	51.6	**41.1***	60.4	10.6	14.5	35.7
WB Gunnison	59.1	44.0	36.1	61.6	11.0	13.2	35.0
WB9590	60.1			62.0	10.6	15.1	33.1
WB9668	60.3			60.6	10.5	15.2	30.6
WB9879CLP	59.8	46.6	37.0	60.1	10.4	15.5	36.6
Experimental							
MT1621	**77.7****	52.8		62.4	11.0	13.4	37.5
MT1673	67.9	50.8		59.6	10.5	15.5	36.1
MT1716	67.2			61.8	11.0	14.3	35.4
MT1767	64.5			58.8	10.4	15.2	36.2
Average	63.7	47.2	37.4	60.9	10.6	14.7	36.7
PLSD (p=0.05)	7.2	ns	3.9	1.9	0.3	1.5	2.6
CV%	6.5	8.8	10.0	1.9	1.9	6.3	4.5

1/ Cultivar Fortuna was grazed/damaged by deer and was excluded for data analysis.
2/ Yields are based on 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.
3/ 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. 199995)	
Planted:	April 17, 2019
Harvested:	August 26, 2019
Fertility:	10 gallons/a of 28.1-0-0-5 NPKS
Herbicide:	n/a
Insecticide:	none applied
Previous Crop:	safflower
Precipitation:	n/a

Table 2. Performance of 25 spring wheat cultivars tested under irrigation near Hysham during 2019. Cultivars listed alphabetically. (Exp. 199996).

Cultivar	Grain Yield 1/ 2019	2018-19	2017-19	Test Weight	Grain Moisture	Grain Protein 2/	Plant Height	Lodging
	------- bushels/acre -------			lb/bu	%	%	inches	0-9
Commercial								
Alum	52.2	63.1	82.1	59.9	9.5	15.3	38.1	5.4
Brennan	56.4	68.7	83.7	60.1	9.4	15.8	36.9	2.9
Choteau	59.3	74.0	89.8	59.3	9.4	15.6	38.7	4.3
Corbin	58.6	68.5	86.7	60.5	9.5	15.6	40.2	5.2
CP3939	57.7			60.6	9.5	15.8	39.8	4.5
Duclair	60.3	70.5	91.6	59.0	9.2	15.2	38.8	4.0
Egan	62.1	73.1	86.5	60.0	9.2	16.8	37.1	7.4
Fortuna	44.4	61.0	77.7	59.9	9.5	15.0	44.4	5.3
Lanning	72.4	81.9	93.7	60.4	9.4	15.5	36.7	3.0
LCS Pro	58.1	69.4	90.9	62.2	10.0	15.4	42.4	1.9
NS Presser	49.3	70.3	91.6	57.5	9.0	16.2	39.7	6.9
Reeder	62.0	71.9	88.6	61.3	9.7	15.5	41.3	3.1
Solano	**83.6****	83.0	94.5	60.7	9.3	14.6	30.2	1.5
SY 605	62.3	77.6	90.6	62.5	9.9	16.3	38.9	2.1
SY Ingmar	64.7	78.7	92.2	60.9	9.5	15.9	36.0	4.2
SY Soren	67.7	76.9	90.6	59.4	9.3	15.2	37.4	4.6
Vida	57.7	76.1	95.3	59.6	9.6	15.6	38.4	3.4
WB Gunnison	55.4	67.7	86.0	57.4	9.7	14.4	37.5	6.4
WB9590	72.6			60.0	9.1	15.2	36.1	4.5
WB9668	**77.9***			60.9	9.4	15.3	32.9	4.6
WB9879CLP	66.8	77.0	92.7	60.0	9.5	15.4	39.8	4.1
Experimental								
MT1621	70.6	79.6		61.1	9.9	15.7	38.9	2.0
MT1673	65.0	72.3		59.1	9.2	15.9	38.2	4.0
MT1716	66.9			60.3	9.6	14.7	38.5	3.2
MT1767	65.9			58.1	9.6	15.9	37.5	4.6
Average	62.8	73.1	89.2	60.0	9.5	15.5	38.2	4.1
PLSD (p=0.05)	10.7	ns	ns	1.5	0.4	0.7	2.3	1.9
CV%	10.4	9.1	6.6	1.5	2.6	2.9	3.4	26.5

1/ Yields are based on 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.
2/ Grain protein values adjusted to 12 percent grain moisture content.
3/ Lodging severity scores of 0 to 9 represent no lodging to all stems flat on the ground, respectively.
** Indicates highest yielding cultivar within a column.
* Indicates cultivars yielding equal to highest yielding cultivar within a column based on Fisher's protected LSD (p=0.05).

Hysham Irrigated Spring Wheat (Exp. 199996)

Planted:	April 12, 2019
Harvested:	August 22, 2019
Fertility:	130-0-0 lb/a NPK
Herbicide:	n/a
Fungicide:	n/a
Previous Crop	Sugar beet
Irrigation:	flood

Table 3. Performance of 25 spring wheat cultivars tested under irrigation near Fromberg, Montana during 2019. Cultivars listed alphabetically. (Exp. 199997).

Cultivar	Grain Yield 1/ 2019	Grain Yield 1/ 2018-19	Grain Yield 1/ 2017-19	Test Weight	Grain Moisture	Grain Protein 2/	Plant Height	Lodging
	------- bushels/acre -------			lb/bu	%	%	inches	0-9
Commercial								
Alum	97.7	**95.9***	94.5	62.7	8.8	13.8	39.8	1.7
Brennan	87.4	**88.7***	99.0	63.9	8.6	15.1	36.6	0.0
Choteau	97.3	**92.0***	94.3	62.7	8.9	14.3	39.6	1.0
Corbin	89.4	84.6	90.4	62.6	8.8	14.5	39.1	2.3
CP3939	96.3			63.9	9.0	14.8	40.2	0.7
Duclair	**99.5***	**92.0***	98.2	62.6	8.6	14.1	40.4	1.0
Egan	90.2	86.3	91.2	62.4	8.3	16.1	39.4	0.7
Fortuna	79.8	81.7	84.8	62.8	8.4	14.2	49.0	4.3
Lanning	**101.0***	**88.2***	96.3	63.0	8.3	15.4	38.8	0.3
LCS Pro	92.6	80.2	89.4	64.4	9.1	14.8	44.0	0.7
NS Presser	91.9	86.6	79.2	60.7	9.0	13.5	42.3	2.3
Reeder	**100.3***	**89.7***	93.7	63.1	8.8	14.5	44.1	0.7
Solano	97.4	**94.1***	99.2	63.1	8.6	14.6	32.2	0.0
SY 605	95.4	80.1	88.1	64.5	8.7	14.7	41.2	0.0
SY Ingmar	96.9	**88.6***	97.7	64.4	8.7	15.4	38.6	0.0
SY Soren	94.5	**88.5***	97.5	64.7	8.6	14.9	38.7	0.0
Vida	**108.0****	**98.7***	96.8	61.8	9.3	13.9	39.8	2.7
WB Gunnison	92.0	**90.1***	94.6	62.0	9.5	13.4	39.6	0.3
WB9590	95.7			63.0	9.0	15.1	36.7	0.0
WB9668	**104.0***			64.0	8.5	14.7	34.8	0.0
WB9879CLP	**102.6***	**99.0****	101.1	63.3	8.7	14.2	39.2	1.3
Experimental								
MT1621	**103.0***	**96.9***		63.3	9.5	14.7	43.0	2.0
MT1673	91.9	85.6		61.8	8.0	15.1	39.9	1.3
MT1716	**105.1***			64.3	8.6	13.6	39.0	2.0
MT1767	**99.5***			61.0	8.8	14.5	39.9	3.0
Average	96.4	89.4	93.7	63.0	8.8	14.6	39.8	1.1
PLSD (p=0.05)	9.4	11.4	ns	0.8	0.6	0.5	2.5	1.3
CV%	5.5	6.4	6.9	0.7	3.6	1.8	3.8	68.9

1/ Yields are based on 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.
2/ Grain protein values adjusted to 12 percent grain moisture content.
3/ Lodging severity scores of 0 to 9 represent no lodging to all stems flat on the ground, respectively.
** Indicates highest yielding cultivar within a column.
* Indicates cultivars yielding equal to highest yielding cultivar within a column based on Fisher's protected LSD (p=0.05).

Fromberg Irrigated Spring Wheat (Exp. 199997)

Planted:	April 11, 2019
Harvested:	August 16, 2019
Fertility:	100-0-25-20 N-P-K-S lb/a
Herbicide:	n/a
Insecticide/Fungicide:	n/a
Previous Crop:	Sugar beat
Irrigation:	overhead sprinkler

Table 4. Grain yield[1/] of spring wheat cultivars tested at three locations in south central Montana during 2019. Varieties listed by declining three-location average yield.

Cultivar	Dryland	Irrigated			Three Location
	Broadview	Hysham	Fromberg	Ave.	Average
	---------- bushels/acre ----------				
MT1621	**77.7****	70.6	**103.0***	**86.9***	**83.8****
Solano	62.0	**83.6****	97.4	**90.6****	**80.9***
WB9668	60.3	**77.9***	**104.0***	**89.9***	**80.5***
Lanning	67.3	72.4	**101.0***	**86.6***	**80.2***
MT1716	67.2	66.9	**105.1***	**86.0***	**79.8***
Vida	**70.9***	57.7	**108.0****	**83.3***	**79.0***
WB9879CLP	59.8	66.8	**102.6***	**85.0***	**76.9***
MT1767	64.5	65.9	**99.5***	**83.4***	**76.7***
WB9590	60.1	72.6	95.7	**84.4***	**76.3***
Duclair	68.0	60.3	**99.5***	80.1	**75.7***
SY Soren	62.0	67.7	94.5	81.3	**75.2***
SY Ingmar	62.9	64.7	96.9	81.0	**75.2***
Reeder	64.4	62.0	**100.3***	79.9	75.0
MT1673	67.9	65.0	91.9	78.0	74.8
Choteau	65.4	59.3	97.3	78.0	73.5
CP3939	63.5	57.7	96.3	77.0	72.3
Egan	63.5	62.1	90.2	76.8	72.1
SY 605	59.6	62.3	95.4	77.4	71.6
LCS Pro	62.4	58.1	92.6	74.9	70.6
Brennan	65.0	56.4	87.4	72.9	70.5
Alum	59.9	52.2	97.7	75.7	70.2
Corbin	60.9	58.6	89.4	74.0	69.9
NS Presser	68.1	49.3	91.9	70.5	69.5
WB Gunnison	59.1	55.4	92.0	74.0	69.1
Fortuna	51.1	44.4	79.8	61.8	58.3
Average	63.7	62.8	96.4	79.6	74.3
PLSD (p=0.05)	7.2	10.7	9.4	7.9	8.6
CV%	6.5	10.4	5.5	11.3	7.7

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).

Table 5. Performance of spring wheat cultivars tested under both dryland and irrigated conditions at three locations in south central Montana during 2019. Cultivars listed alphabetically.

Cultivar	Grain Yield 1/ 2019	Grain Yield 1/ 2018-19	Grain Yield 1/ 2017-19	Test Weight	Grain Moisture	Grain Protein 2/	Plant Height	Lodging
	------- bushels/acre -------			lb/bu	%	%	inches	0-9
Commercial								
Alum	70.2	67.4	71.7	60.2	9.6	14.4	39.0	2.4
Brennan	70.5	68.7	73.9	62.7	9.6	15.2	36.0	1.0
Choteau	73.5	70.3	73.2	60.8	9.6	14.9	38.5	1.7
Corbin	69.9	65.1	70.7	61.2	9.7	15.0	39.0	2.6
CP3939	72.3			61.7	9.7	15.2	38.8	1.7
Duclair	**75.7***	71.1	77.3	60.6	9.5	14.5	38.6	1.7
Egan	72.1	67.9	72.1	60.3	9.3	16.4	38.2	2.6
Fortuna	58.3	60.9		60.9	9.6	14.5	46.6	3.1
Lanning	**80.2***	**73.1***	77.1	61.3	9.4	15.3	37.1	1.2
LCS Pro	70.6	66.6	73.5	62.6	10.0	14.8	41.6	0.9
NS Presser	69.5	68.4	69.6	58.8	9.5	14.9	40.2	3.1
Reeder	75.0	71.0	75.4	62.2	9.7	14.6	41.7	1.3
Solano	**80.9***	**72.6***	75.0	62.2	9.4	14.5	31.2	0.4
SY 605	71.6	68.8	73.0	63.2	9.8	15.3	39.9	0.7
SY Ingmar	**75.2***	**73.0***	77.2	62.6	9.7	15.5	36.9	1.3
SY Soren	**75.2***	70.3	76.1	62.2	9.5	14.8	36.9	1.5
Vida	**79.0***	**74.8***	77.5	60.6	9.8	14.7	38.0	2.1
WB Gunnison	69.1	66.8	72.8	60.3	10.0	13.7	37.4	2.3
WB9590	**76.3***			61.7	9.6	15.1	35.4	1.3
WB9668	**80.5***			61.8	9.4	15.1	32.8	1.4
WB9879CLP	**76.9***	**73.4***	75.8	61.1	9.6	15.0	38.5	1.8
Experimental								
MT1621	**83.8****	**77.6****		62.3	10.1	14.6	39.7	1.4
MT1673	74.8	69.9		60.2	9.2	15.5	38.1	1.8
MT1716	**79.8***			62.1	9.7	14.1	37.5	1.8
MT1767	**76.7***			59.3	9.6	15.2	37.9	2.5
Average	74.3	69.9	74.2	61.3	9.6	14.9	38.2	1.7
PLSD (p=0.05)	8.6	6.1	ns	1.3	0.3	0.7	1.6	ns
CV%	7.7	8.1	7.4	1.5	2.8	4.1	4.0	47.9
Location Years	3	7	12	3	3	3	3	3

1/ Yields are based on 60 pound standard bushel weight and adjusted to 13.0 percent moisture content.
2/ Grain protein values adjusted to 12 percent grain moisture content.
** 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 6. Performance of 25 spring wheat cultivars tested under irrigated conditions only in south central Montana during 2019. Cultivars listed alphabetically.

Cultivar	Grain Yield 1/ 2019	Grain Yield 1/ 2018-19	Grain Yield 1/ 2017-19	Test Weight	Grain Moisture	Grain Protein 2/	Plant Height	Lodging
	------- bushels/acre -------			lb/bu	%	%	inches	0-9
Commercial								
Alum	75.7	76.4	**86.1***	61.2	9.2	14.6	39.0	3.7
Brennan	72.9	77.9	**89.2***	62.0	9.0	15.4	36.6	1.5
Choteau	78.0	**79.8***	**86.2***	61.1	9.1	15.0	39.3	2.5
Corbin	74.0	72.0	83.4	61.5	9.2	15.0	39.5	3.8
CP3939	77.0			62.2	9.2	15.3	40.2	2.6
Duclair	80.1	**80.2***	**92.1***	60.8	8.9	14.7	39.6	2.5
Egan	76.8	77.4	**86.0***	61.2	8.8	16.5	38.3	3.8
Fortuna	61.8	68.5	78.9	61.3	9.0	14.6	46.8	4.7
Lanning	**86.6***	**82.5***	**91.6***	61.6	8.9	15.6	37.7	1.8
LCS Pro	74.9	75.0	**87.8***	63.3	9.5	15.1	43.0	1.3
NS Presser	70.5	75.5	79.2	59.1	9.0	14.8	40.9	4.7
Reeder	79.9	**80.3***	**90.1***	62.2	9.3	15.0	42.6	2.0
Solano	**90.6****	**82.8***	**90.6***	61.9	9.0	14.6	31.2	0.7
SY 605	77.4	78.4	**88.1***	63.5	9.3	15.4	40.0	1.0
SY Ingmar	81.0	**82.8***	**93.3****	62.6	9.1	15.6	37.3	2.0
SY Soren	81.3	**80.5***	**91.7***	62.0	8.9	15.0	38.1	2.3
Vida	**83.3***	**84.1***	**91.2***	60.7	9.4	14.8	39.2	3.1
WB Gunnison	74.0	75.9	**86.8***	59.7	9.6	13.9	38.6	3.5
WB9590	**84.4***			61.5	9.1	15.1	36.6	2.0
WB9668	**89.9***			62.5	8.9	15.0	33.9	2.2
WB9879CLP	**85.0***	**84.2***	**90.6***	61.7	9.1	14.8	39.5	2.7
Experimental								
MT1621	**86.9***	**87.6****		62.2	9.7	15.3	40.8	2.2
MT1673	78.0	77.6		60.5	8.6	15.5	39.0	2.7
MT1716	**86.0***			62.3	9.1	14.1	38.6	2.8
MT1767	**83.4***			59.6	9.2	15.2	38.7	3.8
Average	79.6	79.0	87.9	61.5	9.1	15.0	39.0	2.6
PLSD (p=0.05)	7.9	8.1	7.9	1.2	0.5	0.9	1.9	2.3
CV%	11.3	7.8	7.1	1.2	3.3	2.6	3.7	39.1
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).