

**Title (4W5736):** North Central Montana Off-Station Spring Wheat Variety Performance Evaluations

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### **Objectives:**

Diverse cropping environments exist within the five-county area most closely served by Northern Agricultural Research Center. Winter wheat, spring wheat, barley, durum and oat production together in the five counties (Blaine, Chouteau, Hill, Liberty and Phillips) represents 28 percent of the 2010-2014 statewide cereal production totals (44 percent for winter wheat and 24 percent for spring wheat). Producers are keenly interested in variety performance data generated under local conditions. It is our objective, within budget and other resource limitations, to evaluate small grain variety performance, over time, under conditions representative of specific areas of northern Montana, yet differing from that of the Research Center. Growers in north central Montana are provided reliable, unbiased, up-to-date information to make comparisons among improved spring wheat varieties. This report provides producers in north central Montana the information necessary to select varieties best suited for their specific area and growing conditions.

### **Methods:**

Standard off-station spring wheat variety performance trials were conducted in 2015 on chemical fallow at four locations in four northern Montana counties.

Dryland Spring Wheat Trials:

- |   |            |
|---|------------|
| 1. Cederberg Farm, Blaine County          | 13-36N-25E |
| 2. Flansaas/Lumsden Farm, Phillips County | 24-35N-29E |
| 3. McKeever Farms, Chouteau County        | 29-27N-10E |
| 4. Kammerzell Farm, Liberty County        | 13-31N-05E |

All four spring wheat trials consisted of 20 entries and were seeded in replicated, 3-row, 22-foot plots on a 12-inch row spacing, utilizing a self-propelled cone seeder with Atom Jet paired row openers. All rows of each plot were trimmed to a harvest length of 16.5 feet with a three-point rototiller. Plant height was measured and percent sawfly cutting was estimated for each plot immediately prior to harvest. A 'Wintersteiger Classic' plot combine, funded in part by the Montana Wheat and Barley Committee, was used to harvest each 3-row plot. Seed was cleaned prior to measuring plot weight. Protein, test weight and moisture content were determined using a Foss Infratec 1241 near infrared analyzer. Falling number was determined using a Perten FN1700 according to the FGIS Directive 9180.38. Other variables specific to each individual trial are listed with the current year data tables.

### **Results:**

Please note that research trial yield results recorded under wheat stem sawfly pressure are likely much higher than a producer should expect. Small plot variety trials are managed to assess maximum yield potential and are harvested in such a way that all stems and heads are picked up by the combine, regardless of lodging or cutting due to sawfly. Pickup guards coupled with an extremely slow ground speed and an exceptionally low cutting height help researchers collect all heads in order to assess seed yield potential. If you are a producer in a wheat stem sawfly environment, although hollow stemmed varieties may be high yielding in research trials in your area, we strongly recommend against growing those hollow stemmed varieties. Please be aware that if you seed hollow stemmed varieties with sawfly present, you are only creating a breeding ground for future generations of sawfly in your area and not helping combat

the pest population.

Cropping environments in 2015 started out below average to marginal with warmer early spring temperatures and lower than normal precipitation across north central Montana. Greater than normal rainfall was experienced at Turner and Loring resulting in good to excellent spring wheat yields for growers. The Loma and Chester locations went into the fall and started out early spring dryer than normal. Timely precipitation was a limiting factor throughout the growing season, resulting in only poor to fair spring wheat seed yields.

At Havre, annual growing season precipitation (9/1/14 through 8/31/15) was 12.05 inches, nearly the same as the average for all years since 1916. April 1 through July 31 precipitation was 7.52 inches or 110 percent of the 100-year average. Heat units expressed as "Growing Degree Days" (GDD, base 50) from May through July totaled 1287, 100 percent of the average for the last 65 years (1951-2015). The last spring frost was on May 20 and the first fall frost of 2015 was on September 27, resulting in 130 frost-free days. The minimum winter temperature was -19 degrees F on November 14, 2014 and February 4 and 5, 2015. Overall, the 2014-2015 crop year temperatures were 2 degrees warmer than the long-term average. The April through July growing season saw an average daily temperature of 57.7 degrees F, similar to historical temperatures. July and August average temperatures were very similar to long-term averages with the high for 2015 recorded on June 29 and August 14 at 98 degrees F. There were 20 days with temperatures 90 degrees F or above, with no days over 100 degrees F.

Following a summer of timely rainfall, the spring wheat trial yields at Turner averaged just over 38 bu/ac (Table 1). An experimental breeding line from Montana State University, 'MT1316', was the highest yielding entry at nearly 44 bu/ac. 'Oneal', 'SY Tyra' and 'Vida' along with one experimental line produced yields ranging from 44 to 43 bu/ac, statistically equal to that of MT1316. Test weight of all entries averaged over 62 lb/bu. Sawfly cutting was nonexistent in the spring wheat trial at Turner, however there were trace amounts of *Fusarium species* disease symptoms, as identified by Schutter Diagnostic Lab. Stand percent, plant height, yield, test weight, moisture, protein, falling number, sawfly cutting and *Fusarium sp.* data for the 2015 Turner dryland spring wheat trial are summarized in Table 1. Nine-year comparable averages (2006-2015) for spring wheat seed yield and test weight at Turner are summarized in Table 2, while nine-year comparable averages for sawfly cutting are summarized in Table 3.

Loring spring wheat yields averaged over 46 bu/ac with Montana State University experimental breeding line MT1316 producing the highest yield at over 55 bu/ac. 'Vida', 'Oneal' and experimental line 'WPSP2-VIDA1' were the only other entries to produce yields statistically equal to that of MT1316. For the first time in the past 10 years, sawfly cutting was nonexistent in the trial at the Loring site. Stand percent, plant height, yield, test weight, moisture, protein, falling number and sawfly cutting data for the 2015 Loring dryland spring wheat trial are summarized in Table 4. Ten-year comparable averages for spring wheat seed yield and test weight at Loring are summarized in Table 5, while ten-year comparable averages for sawfly cutting are summarized in Table 6.

In 2013, off-station spring wheat trials were re-established near Loma. The lack of timely rain showers coupled with higher than normal spring and early summer temperatures, resulted in spring wheat yields at Loma averaging only 31 bu/ac. MT1316 was the highest yielding entry at nearly 37 bu/ac. 'McNeal' and two other experimental lines yielded statistically equal to MT1316 (Table 7). Sawfly cutting in the small plot situation was low this year, averaging only 6.5 percent cutting. Plant height, yield, test weight, moisture, protein, falling number and sawfly cutting data for the 2015 Loma dryland spring wheat trial are summarized in Table 7. Three-year comparable averages for spring wheat seed yield and test weight at Loma are summarized in Table 8, while three-year comparable averages for sawfly cutting are summarized in Table 9.

In 2014, off-station spring wheat trials were established near Chester. The lack of timely rainfall events coupled with disease pressure resulted in spring wheat yields averaging just over 20 bu/ac. MT1316 was again the highest yielding entry at over 24 bu/ac, while 'Brennan', 'Egan', 'Vida', and 'WB Gunnison' produced yields statistically equal to that of MT1316 (Table 10). Sawfly cutting in the small plot scenario was nonexistent in 2015, however most plots exhibited a certain amount of *Fusarium species* disease symptoms, as identified by Schutter Diagnostic Lab. Stand percent, plant height, yield, test weight, moisture, protein, falling number, sawfly cutting and *Fusarium sp.* data for the 2015 Chester dryland spring wheat trial are summarized in Table 10. Comparable averages for spring wheat at the Chester site will not be available until the 2016 crop year.

### **Summary:**

This work has been strongly supported by producers near each of the locations, and by the Northern Agricultural Research Center Advisory Council. With budget and other resources allowing, it is planned to continue off-station

cereal variety investigations in the five-county area. The Loring location is entering its twentieth year, and the cooperators and area producer interest and support has been outstanding. The Turner location is only 32 miles from the Loring site, but growing conditions there are quite different. Cooperator and producer support in the Big Flat area have been outstanding through the years with 2015 marking 32 years at the present Turner site. Various winter and spring cereal trials have been conducted with great producer support at the Chouteau County location, between Big Sandy and Loma, since 1998. The Chester location was reestablished in 2014 following a prolonged absence of uniform off-station spring cereal testing in Liberty County.

**Funding Summary:**

Expenditure information for grant index 4W5736 is to be provided by Montana State University, Office of Sponsored Programs. There is no other grant support for this project.

**MWBC CY2016 Grant Submission Plans:**

It is planned to submit this project for funding consideration in the next calendar year.

**Recognition:**

This research would not have been possible without the assistance of the following summertime hourly employees: Nathan Chapman, Kasee Clark, Rocky Kuhr, Derek Matosich, Kyla McNamara, Dakota Parsons & Kathy Wesley.

**TABLE 1. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at the Leon Cederberg Farm, Turner. Northern Agricultural Research Center. Havre, Montana. 2015. (Exp# 15-9951-SW)**

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	TEST WT Lbs/Bu	MOISTURE %	2/ PROTEIN %	3/ FN seconds	4/ SAWFLY %	5/ FSRM Sp. %
BRENNAN	AGRIPR10	95.4	23.1	29.3	63.0	9.7	15.5	338	0.0	0.3
CHOTEAU	PI633974	95.6	25.2	35.3	61.2	9.8	14.6	330	0.0	0.3
CORBIN	BZ996434	96.4	25.7	38.3	62.3	10.0	14.2	332	0.0	1.0
DUCLAIR	PI660981	95.7	25.0	39.4	60.6	9.9	14.0	321	0.0	0.3
EGAN	PI671855	97.6	23.0	38.5	60.6	9.6	15.8	360	0.0	0.7
FORTUNA	CI 13596	95.6	27.8	34.2	62.0	10.1	13.9	320	0.0	0.7
MCNEAL	PI574642	99.4	24.4	38.1	61.7	9.6	14.8	366	0.0	3.7
MOTT	NDSW0449	95.9	23.8	34.7	62.4	9.8	14.5	300	0.0	0.0
ONEAL	BZ999592	96.8	25.2	<b>41.1</b>	62.7	10.0	14.2	341	0.0	1.0
REEDER	ND 695	94.8	24.3	39.0	62.9	9.8	14.9	323	0.0	0.0
SY SOREN	AGRIPR14	95.3	23.9	36.2	63.2	9.7	15.2	336	0.0	0.0
SY TYRA	AGRIPR12	97.4	21.9	<b>42.0</b>	64.2	10.1	14.1	310	0.0	0.7
VIDA	PI642366	94.8	23.5	<b>43.5</b>	62.2	9.9	14.2	298	0.0	0.0
WB GUNNISON	BZ92413R	93.7	24.0	37.2	62.3	10.0	13.9	334	0.0	0.3
WB 9879CLP	PI666046	96.7	23.1	38.7	61.8	9.8	14.7	329	0.0	0.3
MT 1219	MT0643/MTHW0771	95.2	23.1	39.4	62.3	9.9	14.0	333	0.0	0.7
MT 1316	GLENN/MT0747	95.7	23.0	<b>43.8</b>	62.7	9.8	14.7	313	0.0	0.3
MT 1337	MT0830/MT0858	95.7	27.4	38.3	61.7	9.5	15.0	316	0.0	0.7
MT 1338	MT0830/MT0858	96.7	25.5	39.4	63.4	10.1	14.2	320	0.0	0.7
WPSP2-VIDA1	white VIDA/McNeal (FAM 106)	97.7	24.3	<b>41.5</b>	63.1	10.2	13.1	294	0.0	0.7
EXPERIMENTAL MEANS		96.1	24.4	38.4	62.3	9.9	14.5	325.8	0.0	0.6
LSD (0.05)		3.5	1.9	3.9	0.6	0.2	0.3	9.7	-	1.2
C.V.%		2.2	4.7	6.1	0.6	1.2	1.4	1.8	-	114.4
P-VALUE (Varieties)		0.4084	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	-	0.0003

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 60 lbs/bu as the standard test weight for wheat.

2/ Protein values are adjusted to 12 percent grain moisture.

3/ FN is the falling number value reported in seconds.

4/ Sawfly rating is reported as the percentage of cut stems.

5/ FSRM Sp is the percentage of plants showing fusarium species disease symptoms as identified by the MSU Scutter Diagnostics Lab.

**Bold** indicates highest value within a column.

**Bold** indicates varieties with values equal to highest variety within a column based on Fisher's protected LSD (p=0.05).

Management Information (15-9951-SW)

Seeding Date: April 22, 2015  
Harvest Date: August 13, 2015  
Fertility: 100-20-10 side banded  
System: no till  
Herbicide: none  
Insecticide: none  
Previous Crop: Chemical Fallow - Durum  
Precipitation: not available

**TABLE 2. Nine-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at the Leon Cederberg Farm, Turner. Northern Agricultural Research Center. Havre, Montana. 2006-2015. (Exp# 9951-SW)**

2/ VARIETY or SELECTION	No. of YEARS TESTED 4/	1/ YIELD (Bushels Per Acre)							TEST WEIGHT (Pounds Per Bushel)								
		2011	2012	2013	3/ 2014	2015	AVE. YEARS TESTED 4/	% of CHECK YIELD 5/	9-YR COMP. AVE YIELD 6/	2011	2012	2013	3/ 2014	2015	AVE. YEARS TESTED 4/	% of CHECK TEST WT 5/	9-YR COMP. AVE TEST WT 6/
BZ999592 ONEAL (P+)	7	30.1	23.4	61.7		41.1	37.4	125.7	<b>35.3</b>	61.9	60.8	63.2		62.7	60.8	101.5	<b>60.1</b>
PI642366 VIDA (+)	9	34.7	23.4	66.8		43.5	34.8	124.1	<b>34.8</b>	61.7	60.7	61.3		62.2	58.8	99.3	<b>58.8</b>
PI660981 DUCLAIR (+)	5	31.3	24.0	55.7		39.4	37.4	120.9	<b>33.9</b>	59.9	58.9	60.8		60.6	59.0	97.5	<b>57.8</b>
BZ9M1044 JEDD (P+)	6	26.5	18.5	49.5			32.9	113.6	<b>31.9</b>	61.4	62.1	62.7		60.6	101.7		<b>60.2</b>
BZ996434 CORBIN (P+)	8	32.5	22.6	54.1		38.3	32.9	113.5	<b>31.9</b>	61.9	60.4	62.2		62.3	59.4	100.1	<b>59.3</b>
AGRIPRO8 AP604 CL (P+)	5	29.4	19.9	55.1			35.3	113.0	<b>31.7</b>	62.1	61.2	63.3		60.7	100.7		<b>59.7</b>
ND695 REEDER (+)	9	27.3	22.8	59.0		39.0	31.6	112.5	<b>31.6</b>	61.4	60.5	62.8		62.9	59.2	100.0	<b>59.2</b>
NDSW0449 MOTT (+)	5	31.9	19.6	56.2		34.7	34.5	111.5	<b>31.3</b>	61.7	60.3	62.6		62.4	60.4	99.9	<b>59.2</b>
BZ992322 HANK (P+)	8	24.2	20.9	46.7			30.3	111.0	<b>31.2</b>	60.4	60.2	60.4		57.9	98.3		<b>58.3</b>
PI633974 CHOTEAU (saw fly res)(+)	9	30.6	22.5	52.5		35.3	31.1	110.9	<b>31.1</b>	61.1	59.0	61.3		61.2	58.0	97.8	<b>58.0</b>
BZ992588 CONAN (saw fly tol)(P+)	6	30.5					27.6	109.3	<b>30.7</b>	62.6				58.8	101.1		<b>59.9</b>
PI574642 McNEAL	9	28.0	19.6	50.4		38.1	30.6	109.0	<b>30.6</b>	60.2	59.5	62.2		61.7	58.3	98.5	<b>58.3</b>
BZ902413 WB GUNNISON (P+)	4	33.0	21.5	50.3		37.2	35.5	108.9	<b>30.6</b>	62.3	61.0	62.8		62.3	63.0	102.5	<b>60.7</b>
AGRIPR12 SY TYRA (P+)	4	25.6	19.6	54.6		42.0	35.4	108.7	<b>30.5</b>	62.7	61.6	63.8		64.2	59.0	100.2	<b>59.4</b>
AGRIPRO7 KUNTZ (P+)	4	24.8					28.7	107.3	<b>30.1</b>	61.7				58.8	99.9		<b>59.2</b>
PI632252 OUTLOOK (RWA res)(+)	7	30.3	22.6				26.0	107.2	<b>30.1</b>	60.8	59.7			57.1	97.5		<b>57.8</b>
ACS53610 VOLT (P+)	6	26.3	16.6	48.5			29.5	102.0	<b>28.6</b>	62.2	61.3	63.5		60.5	101.4		<b>60.1</b>
C113596 FORTUNA (saw fly res)	9	29.2	18.6	48.4		34.2	28.1	100.0	<b>28.1</b>	61.7	60.7	61.6		62.0	59.2	100.0	<b>59.2</b>
AGRIPRO6 KELBY (P+)	6	24.6	15.8	46.4			28.7	98.9	<b>27.8</b>	62.6	61.4	62.8		60.3	101.2		<b>60.0</b>
MEANS (For Entries Listed)		29.0	20.7	53.5		38.4			<b>31.1</b>	61.6	60.5	62.3		62.2			<b>59.2</b>
7/ Growing Season Precipitation (in.)		8.3	7.5	n/a	16.4	n/a	8.0										
Soil PAW (in.) to SD @ Planting		7.9	8.9	7.8	8.9	6.3	7.9										
Total Plant Available Water (in.)		7.9	8.9	12.4	n/a	9.9	12.0										
Soil NO3 (lbs.) to SD at Planting		51	15	11	65	49	66										
SD (Sampling Depth in Inches)		48	48	48	48	48	48										
Fertilizer Applied	(# N)	70	70	100	100	100	79										
	(# P <sub>2</sub> O <sub>5</sub> )	40	40	20	20	20	34										
	(# K <sub>2</sub> O)	25	25	10	10	10	21										

Long term check variety is Fortuna.

1/ See MCES Bulletin 1093 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 Pending, CL = Clearfield Tolerant.

3/ No harvest in 2014 due to hail.

4/ Only the most recent 5 years are shown, but summary calculations include all years noted.

5/ Percent of Fortuna yield or test weight for the same data years as those in which a given entry was tested.

6/ 9-Yr Comparable Average = (x/y) \* z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Fortuna for the same years, and z = 9-Yr average yield or test weight for the check variety Fortuna.

7/ Seeding to 14 days prior to harvest maturity.

**TABLE 3. Nine-Year Sawfly Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at the Leon Cederberg Farm, Turner. Northern Agricultural Research Center. Havre, Montana. 2006-2015. (Exp# 9951-SW)**

2/ VARIETY or SELECTION	No. of YEARS TESTED	1/ SAWFLY RATING (% of cut and lodged stems)										AVE. for YEARS TESTED	% of CHECK SAWFLY 4/	9-YR COMP. AVE. SAWFLY 5/	
		2006	2007	2008	2009	2010	2011	2012	2013	3/ 2014	2015				
NDSW0449 MOTT (+)	5					3.7	5.0	1.0	0.0			0.0	1.9	16.0	<b>2.0</b>
BZ902413 WB GUNNISON (P+)	4						6.7	2.3	0.3			0.0	2.3	17.9	<b>2.2</b>
BZ996434 CORBIN (P+)	8		5.0	11.7	3.7	10.3	21.7	18.3	2.0			0.0	9.1	84.2	<b>10.3</b>
BZ992588 CONAN (saw fly tol)(P+)	6	26.7	11.7	10.0	3.7	3.7	23.3						13.2	91.9	<b>11.2</b>
CI 13596 FORTUNA (saw fly res)	9	23.3	16.7	8.3	1.0	8.3	28.3	20.0	3.7			0.0	12.2	100.0	<b>12.2</b>
PI633974 CHOTEAU (saw fly res)(+)	9	21.7	6.7	13.3	3.7	13.3	36.7	28.3	6.7			0.0	14.5	118.9	<b>14.5</b>
AGRIPRO6 KELBY (P+)	6			21.7	7.0		8.7	30.2	21.7	3.3			15.4	132.8	<b>16.2</b>
PI660981 DUCLAIR (+)	5						13.7	33.3	30.0	4.0		0.0	16.2	134.3	<b>16.4</b>
BZ9M1044 JEDD (P+)	6			23.3	3.7	3.7	43.3	16.7	3.7				15.7	135.4	<b>16.5</b>
AGRIPR12 SY TYRA (P+)	4						46.7	23.3	3.7			0.0	18.4	141.7	<b>17.3</b>
BZ999592 ONEAL (P+)	7			21.7	7.0	2.3	40.0	35.0	5.0			0.0	15.9	159.4	<b>19.4</b>
PI642366 VIDA (++)	9	53.3	38.3	20.0	2.3	18.3	26.7	33.3	3.3			0.0	21.7	178.4	<b>21.7</b>
AGRIPRO8 AP604 CL (P+)	5				13.3	20.0	38.3	28.3	10.0				22.0	179.4	<b>21.9</b>
BZ992322 HANK (P+)	8	78.3	38.3	20.0	5.7	8.3	58.3	28.3	8.3				30.7	224.0	<b>27.3</b>
ND 695 REEDER (+)	9	81.7	35.0	18.3	6.7	16.7	53.3	33.3	5.3			0.0	27.8	228.3	<b>27.8</b>
PI632252 OUTLOOK (RWA res)(+)	7	81.7	41.7	30.0	13.3	21.7	46.7	36.7					38.8	256.3	<b>31.2</b>
AGRIPRO7 KUNTZ (P+)	4			35.0	13.3	18.3	61.7						32.1	279.0	<b>34.0</b>
PI574642 McNEAL	9	73.3	56.7	46.7	18.3	25.0	80.0	61.7	21.7			0.0	42.6	349.6	<b>42.6</b>
ACS53610 VOLT (P+)	6			70.0	25.0	38.3	93.3	76.7	48.3				58.6	504.8	<b>61.5</b>
MEANS (For Entries Listed)		55.0	27.8	25.0	8.5	13.8	40.7	29.1	8.1			0.0			<b>21.4</b>
6/ Growing Season Precipitation (in.)		2.5	7.0	6.6	6.0	10.3	8.3	7.5	n/a	16.4	n/a	8.0			
Soil PAW (in.) to SD @ Planting		8.8	5.8	8.1	7.8	9.0	7.9	8.9	7.8	8.9	6.3	7.9			
Total Plant Available Water (in.)		11.3	9.6	14.6	13.8	19.2	7.9	8.9	12.4	n/a	9.9	12.0			
Soil NO3 (lbs.) to SD at Planting		64	81	n/a	94	162	51	15	11	65	49	66			
SD (Sampling Depth in Inches)		48	48	48	48	48	48	48	48	48	48	48			
Fertilizer Applied	(# N)	70	70	70	70	70	70	70	100	100	100	79			
	(# P <sub>2</sub> O <sub>5</sub> )	40	40	40	40	40	40	40	20	20	20	34			
	(# K <sub>2</sub> O)	25	25	25	25	25	25	25	10	10	10	21			

Long-term check variety is Fortuna.

1/ See MCES Bulletin 1093 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 Pending, CL = Clearfield Tolerant.

3/ No harvest in 2014 due to hail.

4/ Percent of Fortuna cut for the same data years as those in which a given entry was tested.

5/ 9-Yr Comparable Average = (x/y) \* z where x = average saw fly rating of a given entry for years tested, y = average saw fly rating for Fortuna for the same years, and z = 9-Yr average saw fly rating for the check variety Fortuna.

6/ Seeding to 14 days prior to harvest maturity.

**TABLE 4. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at the Flansaas-Lumsden Farm, Loring. Northern Agricultural Research Center. Havre, Montana. 2015. (Exp# 15-9955-SW)**

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/	TEST WT Lbs/Bu	MOISTURE %	2/	3/	4/
				YIELD Bu/Ac			PROTEIN %	FN seconds	SAWFLY %
BRENNAN	AGRIPR10	96.5	22.2	39.3	61.3	9.4	14.7	342	0.0
CHOTEAU	PI633974	97.7	21.7	42.5	58.7	9.5	14.5	344	0.0
CORBIN	BZ996434	96.5	22.7	45.4	60.3	9.6	13.9	331	0.0
DUCLAIR	PI660981	98.4	23.7	47.0	57.2	9.3	14.2	331	0.0
EGAN	PI671855	98.4	22.7	40.7	58.5	9.4	15.3	347	0.0
FORTUNA	CI 13596	99.0	28.4	43.0	60.4	9.8	13.9	333	0.0
MCNEAL	PI574642	97.1	24.0	44.5	59.4	9.6	13.9	368	0.0
MOTT	NDSW0449	97.4	22.2	41.9	60.1	9.6	14.6	306	0.0
ONEAL	BZ999592	98.1	24.5	<b>52.3</b>	61.0	9.8	13.9	343	0.0
REEDER	ND 695	96.5	23.6	48.4	60.5	9.6	14.3	326	0.0
SY SOREN	AGRIPR14	97.1	22.9	46.7	59.7	9.3	14.8	340	0.0
SY TYRA	AGRIPR12	96.8	23.0	46.3	62.1	9.9	13.5	319	0.0
VIDA	PI642366	97.4	25.8	<b>52.0</b>	59.8	9.6	13.5	304	0.0
WB GUNNISON	BZ92413R	97.1	23.1	47.2	61.1	9.8	13.4	339	0.0
WB 9879CLP	PI666046	97.4	22.2	44.7	59.6	9.5	14.7	344	0.0
MT 1219	MT0643/MTHW0771	98.4	22.3	44.6	59.4	9.5	13.9	332	0.0
MT 1316	GLENN/MT0747	98.1	22.4	<b>55.1</b>	59.5	9.5	14.1	311	0.0
MT 1337	MT0830/MT0858	97.0	25.3	48.9	58.4	9.2	14.8	327	0.0
MT 1338	MT0830/MT0858	98.7	24.6	50.0	61.4	9.8	14.0	321	0.0
WPSP2-VIDA1	white Vida/McNeal (FAM 106)	97.7	23.9	<b>51.4</b>	60.6	10.0	13.0	306	0.0
EXPERIMENTAL MEANS		97.6	23.6	46.6	60.0	9.6	14.1	330.6	0.0
LSD (0.05)		2.3	2.2	4.6	0.7	0.3	0.4	10.7	-
C.V.%		1.4	5.7	6.0	0.7	1.6	1.8	2.0	-
P-VALUE (Varieties)		0.5460	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	-

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 60 lbs/bu as the standard test weight for wheat.

2/ Protein values are adjusted to 12 percent grain moisture.

3/ FN is the falling number value reported in seconds.

4/ Sawfly rating is reported as the percentage of cut stems.

**Bold** indicates highest value within a column.

**Bold** indicates varieties with values equal to highest variety within a column based on Fisher's protected LSD (p=0.05).

Management Information (15-9955-SW)

Seeding Date: April 22, 2015  
 Harvest Date: August 12, 2015  
 Fertility: 100-20-10 side banded  
 System: no till  
 Herbicide: Everest 2.0, 1 oz/ac  
 Insecticide: none  
 Previous Crop: Chemical Fallow - Spring Wheat  
 Precipitation: 8.94"

**TABLE 5. Ten-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at the Flansaas/Lumsden Farm, Loring, Northern Agricultural Research Center, Havre, Montana, 2006-2015. (Exp# 9955-SW)**

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)					TEST WEIGHT (Pounds Per Bushel)					10-YR COMP. AVE YIELD 5/	10-YR COMP. TEST WT 5/				
		2011	2012	2013	2014	2015	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	2011	2012	2013			2014	2015	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/
PI642366 VIDA (+)	10	38.0	29.7	71.4	54.3	52.0	41.0	127.3	<b>41.0</b>	61.2	60.8	60.5	56.9	59.8	58.6	100.2	<b>58.3</b>
BZ999592 ONEAL (P+)	8	40.5	28.7	61.4	45.3	52.3	41.8	121.9	<b>39.2</b>	62.2	60.4	62.0	57.0	61.0	60.4	102.5	<b>59.6</b>
ND 695 REEDER (+)	10	34.9	26.6	70.3	47.7	48.4	38.2	118.5	<b>38.2</b>	61.7	60.2	61.8	57.1	60.5	58.9	100.7	<b>58.6</b>
AGRIPRO3 AP604 CL (P+)	5	31.9	27.4	63.6			37.3	113.8	<b>36.6</b>	62.1	60.6	61.0			60.0	101.1	<b>58.8</b>
PI632252 OUTLOOK (RWA res)(+)	7	37.0	29.1				30.2	113.6	<b>36.6</b>	60.6	60.0				57.4	98.6	<b>57.4</b>
BZ996434 CORBIN (P+)	9	36.6	29.3	58.8	41.4	45.4	37.6	112.5	<b>36.2</b>	61.5	60.9	60.8	56.4	60.3	58.9	100.5	<b>58.4</b>
PI660981 DUCLAIR (+)	6	33.5	26.1	56.4	47.2	47.0	40.8	111.8	<b>36.0</b>	59.3	60.3	59.3	55.3	57.2	57.8	97.7	<b>56.8</b>
AGRIPR12 SY TYRA (P+)	5	34.0	26.8	59.3	47.5	46.3	42.8	111.0	<b>35.7</b>	62.5	57.9	61.3	56.7	62.1	60.1	100.7	<b>58.6</b>
BZ9M1044 JEDD (P+)	7	32.5	27.6	50.8	38.0		36.5	110.6	<b>35.6</b>	62.8	60.5	60.9	56.7		60.1	102.4	<b>59.6</b>
AGRIPRO7 KUNTZ (P+)	4	32.9					32.0	110.3	<b>35.5</b>	61.9					59.5	101.8	<b>59.2</b>
PI666046 WB9879CLP (P+)	3			59.2	43.7	44.7	49.2	108.7	<b>35.0</b>			59.6	55.5	59.6	58.3	98.4	<b>57.2</b>
BZ992322 HANK (P+)	8	32.9	25.4	53.4			32.7	108.6	<b>35.0</b>	60.6	60.5	58.8			57.8	98.9	<b>57.5</b>
ACS53610 VOLT (P+)	7	34.6	21.5	57.8	45.8		35.9	108.6	<b>35.0</b>	62.5	60.6	62.4	58.1		60.2	102.7	<b>59.7</b>
BZ902413 WB GUNNISON (P+)	5	34.8	23.1	55.4	45.9	47.2	41.3	107.2	<b>34.5</b>	61.8	59.4	61.7	57.5	61.1	60.3	101.1	<b>58.8</b>
NDSW0449 MOTT (+)	6	37.4	23.3	57.1	41.9	41.9	39.1	107.0	<b>34.5</b>	61.1	60.4	60.6	55.3	60.1	58.9	99.7	<b>58.0</b>
PI633974 CHOTEAU (saw fly res)(+)	10	34.2	25.1	55.7	42.5	42.5	34.3	106.4	<b>34.3</b>	60.5	59.7	59.6	55.5	58.7	57.5	98.3	<b>57.2</b>
BZ992588 CONAN (saw fly tol)(P+)	6	32.4					28.7	105.4	<b>33.9</b>	61.6					58.9	102.1	<b>59.4</b>
PI574642 McNEAL	10	33.2	22.9	55.0	40.7	44.5	33.9	105.3	<b>33.9</b>	60.3	60.1	61.3	56.1	59.4	58.0	99.2	<b>57.7</b>
AGRIPRO6 KELBY (P+)	6	33.3	22.4	53.0			33.6	104.6	<b>33.7</b>	62.7	61.0	61.6			60.3	102.1	<b>59.4</b>
CI 13596 FORTUNA (saw fly res)	10	34.2	22.7	54.4	38.3	43.0	32.2	100.0	<b>32.2</b>	61.0	59.8	60.9	56.3	60.4	58.5	100.0	<b>58.2</b>
MEANS (For Entries Listed)		34.7	25.7	58.4	44.3	46.3			<b>35.6</b>	61.5	60.2	60.8	56.4	60.0			<b>58.4</b>

6/ Growing Season Precipitation (in.)		n/a	n/a	9.5	5.6	8.9	7.4										
Soil PAW (in.) to SD @ Planting		7.1	8.8	8.8	8.9	8.2	8.5										
Total Plant Available Water (in.)		n/a	8.8	14.6	n/a	15.4	14.7										
Soil NO3 (lbs.) to SD at Planting		50	34	34	64	41	59										
SD (Sampling Depth in Inches)		48	48	48	48	48	48										
Fertilizer Applied	(# N)	70	70	100	100	100	79										
	(# P <sub>2</sub> O <sub>5</sub> )	40	40	20	20	20	34										
	(# K <sub>2</sub> O)	25	25	10	10	10	21										

Long-term check variety is Fortuna.

1/ See MCES Bulletin 1093 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 Pending.

3/ Only the most recent 5 years are shown, but summary calculations include all years noted.

4/ Percent of Fortuna yield or test weight for the same data years as those in which a given entry was tested.

5/ 10-Yr Comparable Average = (x/y) \* z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Fortuna for the same years, and z = 10-Yr average yield or test weight for the check variety Fortuna.

6/ Seeding to 14 days prior to harvest maturity.

**TABLE 6. Ten-Year Sawfly Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at the Flansaas/Lumsden Farm, Loring. Northern Agricultural Research Center. Havre, Montana. 2006-2015. (Exp# 9955-SW)**

2/ VARIETY or SELECTION	No. of YEARS TESTED	1/ SAWFLY RATING (% Cut and Lodged)										AVE. for YEARS TESTED	% of CHECK SAWFLY 3/	10-YR COMP. AVE SAWFLY 4/	
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015				
PI666046 WB9879CLP (P+)	3									0.3	0.0	0.0	0.1	19.6	<b>0.9</b>
NDSW0449 MOTT (+)	6					1.0	5.0	1.0	0.0	0.7	0.0	1.3	28.7	<b>1.4</b>	
BZ902413 WB GUNNISON (P+)	5						5.0	1.0	1.0	0.0	0.0	1.4	46.6	<b>2.2</b>	
BZ996434 CORBIN (P+)	9		2.3	2.3	2.3	5.3	10.0	3.7	0.7	0.3	0.0	3.0	62.6	<b>3.0</b>	
BZ9M1044 JEDD (P+)	7			1.0	2.3	2.3	10.0	11.7	0.0	0.7		4.0	77.7	<b>3.7</b>	
BZ992588 CONAN (saw fly tol)(P+)	6	13.3	1.0	2.3	1.0	1.0	13.3					5.3	80.7	<b>3.9</b>	
BZ999592 ONEAL (P+)	8			1.0	3.7	2.3	16.7	8.3	0.0	0.0	0.0	4.0	88.7	<b>4.3</b>	
PI633974 CHOTEAU (saw fly res)(+)	10	5.0	2.3	2.3	3.7	8.3	16.7	6.7	0.7	1.0	0.0	4.7	97.2	<b>4.7</b>	
CI 13596 FORTUNA (saw fly res)	10	8.3	3.7	4.0	5.3	11.7	6.7	6.7	0.7	1.0	0.0	4.8	100.0	<b>4.8</b>	
AGRIPRO6 KELBY (P+)	6			5.3	2.3	3.7	15.0	15.0	0.0			6.9	118.0	<b>5.7</b>	
PI660981 DUCLAIR (+)	6					10.0	15.0	6.7	0.0	0.3	0.0	5.3	119.8	<b>5.8</b>	
AGRIPRO7 KUNTZ (P+)	4			5.3	5.0	10.0	20.0					10.1	145.8	<b>7.0</b>	
AGRIPRO8 AP604 CL (P+)	5				3.7	8.3	15.0	18.3	0.3			9.1	147.0	<b>7.1</b>	
PI642366 VIDA (+)	10	23.33	3.67	6.7	8.3	10.0	18.3	10.0	0.3	0.3	0.0	8.1	168.6	<b>8.1</b>	
AGRIPR12 SY TYRA (P+)	5						15.0	11.7	0.0	0.7	0.0	5.5	181.8	<b>8.7</b>	
ND 695 REEDER (+)	10	55.0	10.0	3.7	3.7	10.3	18.3	15.0	0.7	2.3	0.0	11.9	247.8	<b>11.9</b>	
BZ992322 HANK (P+)	8	63.3	20.0	2.3	6.7	5.0	11.7	11.7	0.7			15.2	258.0	<b>12.4</b>	
PI632252 OUTLOOK (RWA res)(+)	7	68.3	10.0	8.3	8.3	13.3	15.0	16.7				20.0	302.2	<b>14.5</b>	
ACS53610 VOLT (P+)	7			23.3	26.7	15.0	23.3	26.7	6.7	2.0		17.7	343.3	<b>16.5</b>	
PI574642 McNEAL	10	71.7	16.7	6.7	21.7	20.0	20.0	25.0	1.0	7.0	0.0	19.0	394.9	<b>19.0</b>	
MEANS (For Entries Listed)		38.5	7.7	5.3	7.0	8.1	14.2	11.5	0.8	1.2	0.0			<b>7.3</b>	
5/ Growing Season Precipitation (in.)		2.4	7.4	8.9	5.3	11.6	n/a	n/a	9.5	5.6	8.9	7.4			
Soil PAW (in.) to SD @ Planting		8.3	8.3	8.2	10.5	7.7	7.1	8.8	8.8	8.9	8.2	8.5			
Total Plant Available Water (in.)		10.7	15.7	17.2	15.7	19.3	n/a	8.8	14.6	n/a	15.4	14.7			
Soil NO3 (lbs.) to SD at Planting		81	89	n/a	42	94	50	34	34	64	41	59			
SD (Sampling Depth in Inches)		48	48	48	48	48	48	48	48	48	48	48			
Fertilizer Applied	(# N)	70	70	70	70	70	70	70	100	100	100	79			
	(# P <sub>2</sub> O <sub>5</sub> )	40	40	40	40	40	40	40	20	20	20	34			
	(# K <sub>2</sub> O)	25	25	25	25	25	25	25	10	10	10	21			

Long-term check variety is Fortuna.

1/ See MCES Bulletin 1093 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 Pending.

3/ Percent of Fortuna cut for the same data years as those in which a given entry was tested.

4/ 10-Yr Comparable Average = (x/y) \* z where x = average saw fly rating of a given entry for years tested, y = average saw fly rating for Fortuna for the same years, and z = 10-Yr average saw fly rating for the check variety Fortuna.

5/ Seeding to 14 days prior to harvest maturity.

**TABLE 7. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at McKeever Farm & Seed, Inc., Loma. Northern Agricultural Research Center. Havre, Montana. 2015. (Exp# 15-9957-SW)**

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/	TEST WT Lbs/Bu	MOISTURE %	2/	3/	4/
				YIELD Bu/Ac			PROTEIN %	FN seconds	SAWFLY %
BRENNAN	AGRIPR10	93.0	24.9	32.6	56.1	10.1	16.9	320	2.3
CHOTEAU	PI633974	95.6	26.2	29.0	53.4	10.1	17.1	311	2.3
CORBIN	BZ996434	95.3	28.1	31.8	53.5	10.0	17.8	291	2.3
DUCLAIR	PI660981	95.0	29.2	29.7	52.1	10.0	17.2	302	3.7
EGAN	PI671855	96.4	25.4	32.4	52.9	9.9	18.6	345	3.7
FORTUNA	CI 13596	95.3	29.1	24.7	55.2	10.1	16.5	317	2.3
MCNEAL	PI574642	97.3	25.9	<b>33.2</b>	54.0	10.1	17.0	343	10.0
MOTT	NDSW0449	94.6	26.8	26.8	53.8	10.2	17.8	301	1.0
ONEAL	BZ999592	95.6	27.0	32.8	56.1	10.1	17.3	326	6.7
REEDER	ND 695	95.3	24.9	30.3	54.7	10.1	16.9	302	10.0
SY SOREN	AGRIPR14	94.7	23.9	29.3	53.8	10.1	17.8	303	6.7
SY TYRA	AGRIPR12	93.7	24.1	27.7	54.6	10.1	17.4	279	4.0
VIDA	PI642366	94.3	26.2	32.0	53.7	10.2	16.7	286	5.0
WB GUNNISON	BZ92413R	89.8	24.8	30.4	54.7	9.9	16.0	293	1.0
WB 9879CLP	PI666046	96.0	24.1	27.8	53.5	10.0	17.0	310	1.0
MT 1219	MT0643/MTHW0771	91.1	22.3	<b>33.2</b>	53.4	10.0	16.3	293	3.7
MT 1316	GLENN/MT0747	94.0	24.3	<b>36.8</b>	53.0	10.3	17.0	302	28.3
MT 1337	MT0830/MT0858	96.3	25.8	32.4	53.6	10.0	17.3	299	8.3
MT 1338	MT0830/MT0858	95.7	26.6	<b>35.6</b>	57.0	10.1	16.5	322	10.0
WPSP2-VIDA1	white Vida/McNeal (FAM 106)	96.0	25.6	31.8	55.6	10.0	16.2	307	16.7
EXPERIMENTAL MEANS		94.8	25.8	31.0	54.2	10.1	17.1	307.6	6.5
LSD (0.05)		4.8	2.0	3.9	1.1	0.2	0.7	8.8	5.0
C.V.%		3.1	4.6	7.6	1.2	1.0	2.6	1.7	47.2
P-VALUE (Varieties)		0.3545	<.0001	<.0001	<.0001	0.0309	<.0001	<.0001	<.0001

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 60 lbs/bu as the standard test weight for wheat

2/ Protein values are adjusted to 12 percent grain moisture.

3/ FN is the falling number value reported in seconds.

4/ Sawfly rating is reported as the percentage of cut stems.

**Bold** indicates highest value within a column.

**Bold** indicates varieties with values equal to highest variety within a column based on Fisher's protected LSD (p=0.05).

Management Information (15-9957-SW)

Seeding Date: April 21, 2015  
 Harvest Date: August 6, 2015  
 Fertility: 100-20-10 side banded  
 System: no till  
 Herbicide: Bromac, 27 oz/ac  
 Insecticide: none  
 Previous Crop: Chemical Fallow - Spring Wheat  
 Precipitation: not available

**TABLE 8. Three-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at McKeever Farm & Seed, Inc., Loma. Northern Agricultural Research Center. Havre, Montana. 2013-2015. (Exp# 9957-SW)**

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)					TEST WEIGHT (Pounds Per Bushel)										
		2013	2014	2015	2016	2017	AVE. for YEARS TESTED	% of CHECK YIELD 3/	3-YR COMP. AVE. YIELD 4/	2013	2014	2015	2016	2017	AVE. for YEARS TESTED	% of CHECK TEST WT 3/	3-YR COMP. AVE. TEST WT 4/
PI642366 VIDA (+)	3	70.8	42.8	32.0			48.6	140.5	<b>48.6</b>	60.0	55.2	53.7			56.3	97.5	<b>56.3</b>
BZ996434 CORBIN (P+)	3	60.0	37.0	31.8			42.9	124.2	<b>42.9</b>	60.3	56.5	53.5			56.8	98.3	<b>56.8</b>
BZ999592 ONEAL (P+)	3	58.6	37.3	32.8			42.9	124.2	<b>42.9</b>	61.0	55.6	56.1			57.6	99.7	<b>57.6</b>
PI574642 McNEAL	3	53.6	40.5	33.2			42.5	122.8	<b>42.5</b>	60.1	54.9	54.0			56.3	97.5	<b>56.3</b>
ND 695 REEDER (+)	3	60.8	35.7	30.3			42.2	122.2	<b>42.2</b>	60.6	55.7	54.7			57.0	98.7	<b>57.0</b>
BZ92413R WB GUNNISON (P+)	3	58.6	35.8	30.4			41.6	120.4	<b>41.6</b>	62.0	57.3	54.7			58.0	100.4	<b>58.0</b>
PI666046 WB9879CLP (P+)	3	59.2	37.3	27.8			41.4	119.8	<b>41.4</b>	60.7	56.0	53.5			56.7	98.2	<b>56.7</b>
PI660981 DUCLAIR (+)	3	56.3	35.4	29.7			40.5	117.1	<b>40.5</b>	58.0	56.1	52.1			55.4	95.9	<b>55.4</b>
NDSW0449 MOTT (+)	3	61.2	32.3	26.8			40.1	116.0	<b>40.1</b>	60.8	57.0	53.8			57.2	99.0	<b>57.2</b>
PI633974 CHOTEAU (+)(saw fly res)	3	54.7	35.0	29.0			39.5	114.4	<b>39.5</b>	58.9	56.1	53.4			56.1	97.2	<b>56.1</b>
AGRIPR12 SY TYRA (P+)	3	57.1	33.4	27.7			39.4	113.9	<b>39.4</b>	61.9	56.4	54.6			57.6	99.8	<b>57.6</b>
CI 13596 FORTUNA (saw fly res)	3	44.7	34.3	24.7			34.6	100.0	<b>34.6</b>	60.4	57.7	55.2			57.8	100.0	<b>57.8</b>
MEANS (For Entries Listed)		58.0	36.4	29.7					<b>41.3</b>	60.4	56.2	54.1					<b>56.9</b>
5/ Growing Season Precipitation (in.)		9.0	5.1	n/a			7.1										
Soil PAW (in.) to SD @ Planting		9.1	10.4	8.8			9.4										
Total Plant Available Water (in.)		n/a	5.4	13.1			9.2										
Soil NO3 (lbs.) to SD at Planting		51	85	126			87										
SD (Sampling Depth in Inches)		48	48	48			48										
Fertilizer Applied	(# N)	100	100	100			100										
	(# P <sub>2</sub> O <sub>5</sub> )	20	20	20			20										
	(# K <sub>2</sub> O)	10	10	10			10										

Long-term check variety is Fortuna.

1/ See MCES Bulletin 1093 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 Pending.

3/ Percent of Fortuna yield or test weight for the same data years as those in which a given entry was tested.

4/ 3-Yr Comparable Average = (x/y) \* z where x = average yield or test weight of a given entry for years tested, y = average yield or test weight for Fortuna for the same years, and z = 3-Yr average yield or test weight for the check variety Fortuna.

5/ Seeding to 14 days prior to harvest maturity.

**TABLE 9. Three-Year Sawfly Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at McKeever Farm & Seed, Inc., Loma. Northern Agricultural Research Center. Havre, Montana. 2013-2015. (Exp# 9957-SW)**

2/ VARIETY or SELECTION	No. of YEARS TESTED	1/ SAWFLY RATING (% of cut and lodged stems)						
		2013	2014	2015	AVE. for YEARS TESTED	% of CHECK SAWFLY 3/	3-YR COMP. AVE. SAWFLY 4/	
BZ902413 WB GUNNISON (P+)	3	1.0	0.0	1.0	0.7	24.0	<b>0.7</b>	
NDSW0449 MOTT (+)	3	1.0	0.3	1.0	0.8	28.0	<b>0.8</b>	
PI666046 WB9879CLP (P+)	3	3.7	0.3	1.0	1.7	60.0	<b>1.7</b>	
BZ996434 CORBIN (P+)	3	3.7	0.0	2.3	2.0	72.0	<b>2.0</b>	
PI633974 CHOTEAU (+)(saw fly res)	3	5.7	0.0	2.3	2.7	96.0	<b>2.7</b>	
CI 13596 FORTUNA (saw fly res)	3	5.0	1.0	2.3	2.8	100.0	<b>2.8</b>	
PI660981 DUCLAIR (+)	3	7.0	0.0	3.7	3.6	128.0	<b>3.6</b>	
AGRIPR12 SY TYRA (P+)	3	7.0	0.0	4.0	3.7	132.0	<b>3.7</b>	
PI642366 VIDA (+)	3	6.7	0.3	5.0	4.0	144.0	<b>4.0</b>	
BZ999592 ONEAL (P+)	3	6.7	0.7	6.7	4.7	168.0	<b>4.7</b>	
ND 695 REEDER (+)	3	15.0	0.7	10.0	8.6	308.0	<b>8.6</b>	
PI574642 McNEAL	3	20.0	0.7	10.0	10.2	368.0	<b>10.2</b>	
MEANS (For Entries Listed)		6.9	0.3	4.1			<b>3.8</b>	
5/ Growing Season Precipitation (in.)		9.0	5.1	n/a	7.1			
Soil PAW (in.) to SD @ Planting		9.1	10.4	8.8	9.4			
Total Plant Available Water (in.)		n/a	5.4	13.1	9.2			
Soil NO3 (lbs.) to SD at Planting		51	85	126	87			
SD (Sampling Depth in Inches)		48	48	48	48			
Fertilizer Applied								
	(# N)	100	100	100	100			
	(# P <sub>2</sub> O <sub>5</sub> )	20	20	20	20			
	(# K <sub>2</sub> O)	10	10	10	10			

Long-term check variety is Fortuna.

1/ See MCES Bulletin 1093 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/> for evaluation of other important variety performance characteristics to include protein, quality, disease resistance, etc. before making cultivar selection decisions.

2/ P = Private Variety, + = Protected Variety, ++ = PVP Title 5 Pending.

3/ Percent of Fortuna cut for the same data years as those in which a given entry was tested.

4/ 3-Yr Comparable Average = (x/y) \* z where x = average saw fly rating of a given entry for years tested, y = average saw fly rating for Fortuna for the same years, and z = 3-Yr average saw fly rating for the check variety Fortuna.

5/ Seeding to 14 days prior to harvest maturity.

**TABLE 10. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at the Kammerzell Farm, Chester. Northern Agricultural Research Center. Havre, Montana. 2015. (Exp# 15-9953-SW)**

ID	CULTIVAR or SELECTION	STAND %	PLNT HT Inches	1/ YIELD Bu/Ac	TEST WT Lbs/Bu	MOISTURE %	2/ PROTEIN %	3/ FN seconds	4/ SAWFLY %	5/ FSRM Sp. %
BRENNAN	AGRIPR10	91.9	22.4	<b>24.3</b>	58.2	9.5	17.4	344	0.0	5.0
CHOTEAU	PI633974	93.9	22.3	18.3	55.7	9.6	17.9	344	0.0	2.0
CORBIN	BZ996434	96.1	22.9	21.3	55.5	9.5	18.5	325	0.0	0.3
DUCLAIR	PI660981	98.1	23.8	16.1	53.6	9.5	18.0	325	0.0	5.0
EGAN	PI671855	96.4	22.6	<b>22.6</b>	55.5	9.5	18.9	364	0.0	6.7
FORTUNA	CI 13596	90.9	25.7	18.3	57.7	9.7	16.9	338	0.0	2.3
MCNEAL	PI574642	94.2	24.1	22.3	56.1	9.7	18.3	368	0.0	11.7
MOTT	NDSW0449	93.2	21.5	18.3	58.7	9.7	17.9	318	0.0	0.3
ONEAL	BZ999592	94.2	22.5	19.8	58.4	9.9	18.3	356	0.0	5.0
REEDER	ND 695	97.4	23.0	22.0	56.6	9.8	17.8	325	0.0	8.3
SY SOREN	AGRIPR14	95.8	20.1	16.9	54.9	9.6	19.0	345	0.0	6.7
SY TYRA	AGRIPR12	95.2	20.8	21.5	57.1	9.7	17.6	316	0.0	2.3
VIDA	PI642366	94.2	22.4	<b>22.8</b>	56.7	9.8	16.9	315	0.0	5.0
WB GUNNISON	BZ92413R	90.7	22.0	<b>23.1</b>	56.8	9.6	16.9	338	0.0	0.0
WB 9879CLP	PI666046	95.8	21.7	18.1	56.6	9.7	17.6	338	0.0	0.3
MT 1219	MT0643/MTHW0771	93.2	21.5	22.0	55.8	9.6	17.3	346	0.0	3.7
MT 1316	GLENN/MT0747	94.5	22.5	<b>24.5</b>	54.4	9.7	17.8	328	0.0	10.0
MT 1337	MT0830/MT0858	96.5	24.2	22.2	54.7	9.6	17.6	318	0.0	5.0
MT 1338	MT0830/MT0858	92.9	22.9	19.7	57.7	9.6	17.9	345	0.0	10.0
WPSP2-VIDA1	white Vida/McNeal (FAM 106)	97.1	21.4	19.9	55.6	9.7	18.1	340	0.0	5.3
EXPERIMENTAL MEANS		94.6	22.5	20.7	56.3	9.7	17.8	336.7	0.0	4.8
LSD (0.05)		7.0	2.1	1.9	0.8	0.2	0.5	10.1	-	3.6
C.V.%		4.5	5.8	5.7	0.8	1.0	1.7	1.8	-	45.7
P-VALUE (Varieties)		0.7660	0.0029	<.0001	<.0001	0.0035	<.0001	<.0001	-	<.0001

1/ Volumetric yields are based on plot weights adjusted to uniform 12 percent grain moisture and 60 lbs/bu as the standard test weight for wheat

2/ Protein values are adjusted to 12 percent grain moisture.

3/ FN is the falling number value reported in seconds.

4/ Sawfly rating is reported as the percentage of cut stems.

5/ FSRM Sp is the percentage of plants showing fusarium species disease symptoms as identified by the MSU Scutter Diagnostics Lab.

**Bold** indicates highest value within a column.

**Bold** indicates varieties with values equal to highest variety within a column based on Fisher's protected LSD (p=0.05).

Management Information (15-9953-SW)

Seeding Date: April 19, 2015  
 Harvest Date: August 7, 2015  
 Fertility: 100-20-10 side banded  
 System: no till  
 Herbicide: none  
 Insecticide: none  
 Previous Crop: Chemical Fallow - Spring Wheat  
 Precipitation: 4.99"