

**Title:** Northcentral Montana Off-Station Spring Wheat Variety Performance Evaluations

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Kurt Kammerzell, Landowner, Chester  
Pete Lumsden & John Flansaas, Landowners, Loring  
Terry McKeever, Landowner, Loma

**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 over 28 percent of the 2016-2020 statewide cereal production totals (43 percent for winter wheat, 28 percent for spring wheat and 21 percent for durum). 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 are provided reliable, unbiased, up-to-date information to make comparisons among improved spring wheat varieties. This report provides producers in northcentral 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 on chemical fallow or minimal tillage during 2021 in four northern Montana counties.

**Dryland Spring Wheat Trials:**

- |   |               |
|---|---------------|
| 1. Cederberg Farm, Blaine County          | S13-T36N-R25E |
| 2. Flansaas/Lumsden Farm, Phillips County | S24-T35N-R29E |
| 3. McKeever Farms, Chouteau County        | S28-T27N-R10E |
| 4. Kammerzell Farm, Liberty County        | S12-T31N-R5E  |

All four spring wheat trials consisted of 25 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 approximately 17 feet with a three-point rototiller. Plant height was measured from the soil surface to the top of the head, excluding awns, and percent sawfly cutting was visually estimated for each plot immediately prior to harvest. A 'Wintersteiger' small 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 for yield determination. 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.

Please note that research trial seed 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.

### **Results:**

Spring wheat seed yields at Turner averaged just over 18 bu/ac (Table 1). 'NS Presser CLP' was the top yielding entry producing just under 24 bu/ac. 'Dagmar' and breeding lines MT 1931 and MT 1934 all produced yields statistically equal to that of NS Presser CLP. Test weights of all spring wheat entries for this site averaged just under 57 lb/bu. Following a severe hailstorm in 2014, there were consecutive years with no wheat stem sawfly cutting or infestation in the spring wheat trial at Turner, with only minimal cutting from 2017 through 2021. Plant height, yield, protein, falling number and sawfly cutting data for the 2021 Turner dryland spring wheat trial are summarized in Table 1.

Comparable averages are calculated using a standard check variety when not all entries are present in a specific trial for all years. Variety means are adjusted by multiplying the actual check mean by the ratio of the individual variety mean compared to the check mean for the same years as tested. All varieties are then directly comparable to each other when in the same nursery. A minimum of three years of data is necessary to be included in the comparable average calculation. Nine-year comparable averages (2012-2022) for spring wheat seed yield and test weight at Turner are summarized in Table 2, while nine-year comparable averages for protein content and wheat stem sawfly cutting are summarized in Table 3.

Loring spring wheat yields averaged nearly 33 bu/ac with breeding line MT 1931 producing the highest seed yield at over 38 bu/ac (Table 4). 'Lanning' and three additional breeding lines produced seed yields statistically equal to that of MT 1931. For the seventh consecutive year, sawfly cutting was virtually nonexistent in the trial at the Loring site. Plant height, yield, test weight, moisture, protein, falling number and wheat stem sawfly cutting data for the 2021 Loring dryland spring wheat trial are summarized in Table 4. Nine-year comparable averages for spring wheat seed yield and test weight at Loring are summarized in Table 5, while nine-year comparable averages for protein content and wheat stem sawfly cutting are summarized in Table 6.

In 2013, off-station spring wheat trials were re-established near Loma. This site was hit very hard by severe drought following very good early season establishment. The 2021 spring wheat was also laden with an aggressive infestation of grasshoppers prior to harvest, resulting in a fair number of chewed stems and dropped heads. Seed yields for 2021 averaged only 14 bu/ac (Table 7). 'Corbin' was the highest yielding entry at just under 20 bu/ac and 'WB Gunnison' was the only entry to produce a yield statistically equal to that of Corbin. Sawfly damage in the spring wheat small plot scenario averaged just under 28 percent cutting while head and stem loss due to grasshopper feeding was just over 24 percent. Plant height, yield, test weight, protein, falling number, sawfly cutting and grasshopper feeding data for the 2021 Loma dryland spring wheat trial are summarized in Table 7. Nine-year comparable averages for spring wheat seed yield and test weight at Loma are summarized in Table 8, while nine-year comparable averages for protein content and wheat stem sawfly cutting are summarized in Table 9.

Spring wheat seed yields at Chester averaged 23 bu/ac, while test weights averaged just over 54 lb/bu (Table 10). MSU breeding line MT 1938 was the highest yielding entry at just under 27 bu/ac. Seed yields of Corbin, Dagmar, WB Gunnison and 'WB9879CLP', along with three other MSU breeding lines produced yields statistically equal to that of MT 1938. Sawfly cutting in the small plot scenario averaged just over 17 percent in 2021. Falling numbers are extremely low at Chester in 2021, for all entries, due to a late harvest occurring in early September, following a substantial rain event in mid-August. Plant height, yield, test weight, protein, falling number and sawfly cutting data for the 2021 Chester dryland spring wheat trial are summarized in Table 10. Eight-year comparable averages for spring wheat seed yield and test weight at Chester are summarized in Table 11, while eight-year comparable averages for protein content and wheat stem sawfly cutting are summarized in Table 12.

### **Summary:**

Cropping environments for 2021 started out cooler and drier than average quickly turning to warmer and drier than normal, with many spring seeded crops showing drought stress by late May to early June. Timely rainfall was spotty during the mid- to latter part of May, all the way through harvest, creating significant negative impacts on regional seed yields and test weights. Turner received below average rainfall throughout the season, while the Loring site received several timely and significant precipitation events that led to nearly double the seed yield of Turner. The Loma site

had good moisture early, however higher than normal temperatures, limited rainfall and heavy grasshopper infestations had negative effects on seed yield. The Chester area also started the season with adequate soil moisture, but fell into the same hot, dry weather pattern of most of northcentral Montana. The Turner, Loma and Chester sites were all seeded into chemical fallow and the Loring location was seeded into chemical fallow ground that had been minimally tilled to eliminate potential weed issues.

This work has been strongly supported by producers near each of the off-station 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 twenty-seventh year, and the cooperator and area producer interest and support has been outstanding. The Turner location is only 32 miles from the Loring site, but growing conditions are quite different. Cooperator and producer support in the Big Flat area has been outstanding through the years with 2021 marking 38 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.

**Recognition:**

This research would not have been possible without the assistance of the following seasonal employees: Peyton Brown, Savannah Dawson, Teresa Miller, Kristin Obresley, Treygan Olson, Rhoda Peterson and Ivy Thomas.

**TABLE 1. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at the Max Cederberg Farm, Turner. Northern Agricultural Research Center. Havre, Montana. 2021. (Exp# 21-9951-SW)**

ID	CULTIVAR or SELECTION	PLNT HT Inches	1/	TEST WT Lbs/Bu	2/	3/	4/
			YIELD Bu/Ac		PROTEIN %	FN Seconds	SAWFLY %
ALUM	WSCIA	16.6	14.6	<b>57.8</b>	16.5	367	6.7
BRENNAN	AGRIPR 10	16.3	13.8	56.3	<b>16.8</b>	388	11.7
CHOTEAU	PI 633974	<b>17.3</b>	17.5	55.9	16.3	364	<b>0.7</b>
CORBIN	BZ 996434	16.8	17.1	<b>57.6</b>	16.4	377	<b>2.3</b>
DAGMAR	PI 690450	<b>17.3</b>	<b>21.1</b>	<b>58.5</b>	16.2	396	<b>1.7</b>
DUCLAIR	PI 660981	<b>17.9</b>	15.8	53.7	16.4	328	<b>1.0</b>
EGAN	PI 671855	<b>17.0</b>	17.0	56.4	<b>17.5</b>	<b>437</b>	10.0
LANNING	PI 676978	16.7	18.8	56.6	15.9	360	10.0
MT SIDNEY	MT 1716	<b>18.0</b>	17.8	<b>58.3</b>	16.5	355	<b>2.0</b>
NS PRESSER CLP	PI 679964	<b>17.5</b>	<b>23.8</b>	<b>58.2</b>	14.9	375	5.0
REEDER	ND 695	16.7	17.9	57.0	16.1	365	<b>3.7</b>
SY INGMAR	AGRIPR141	16.0	17.7	<b>58.5</b>	16.3	399	5.0
SY SOREN	AGRIPR 14	16.0	15.8	56.6	<b>17.3</b>	<b>411</b>	6.7
VIDA	PI 642366	15.5	20.4	<b>57.7</b>	15.3	354	<b>0.7</b>
WB GUNNISON	BZ 92413R	<b>17.2</b>	15.3	56.7	15.5	334	<b>0.7</b>
WB9879CLP	WB9879CLP	<b>17.0</b>	18.8	57.1	16.2	<b>427</b>	<b>1.0</b>
MT 1809	VIDA/MO 09/3-4	15.9	20.2	55.2	16.7	357	<b>2.3</b>
MT 1855	MT1053/MO8/3-4	15.6	17.4	<b>57.8</b>	16.5	388	<b>3.7</b>
MT 1904	VIDA//MT1018//CHOTEAU/YELLOWSTC	<b>16.9</b>	17.4	<b>58.8</b>	16.0	320	<b>0.7</b>
MT 1927	MT1203/MT1234	<b>16.9</b>	20.4	54.8	16.7	331	<b>0.3</b>
MT 1931	MT1316/MT1319	<b>17.8</b>	<b>21.7</b>	55.1	15.3	319	18.3
MT 1934	VIDA/MT1319	<b>17.8</b>	<b>23.4</b>	56.7	15.2	375	<b>1.0</b>
MT 1938	MT1316//MT1018//CHOTEAU/YELLOW	<b>17.2</b>	19.8	54.9	15.9	373	<b>0.7</b>
MT 1939	MT1316//MT1018//CHOTEAU/YELLOW	<b>17.1</b>	18.3	54.9	15.8	336	<b>3.7</b>
MT 1951	MT1316/EGAN	<b>18.2</b>	17.3	53.2	<b>17.3</b>	383	7.0
EXPERIMENTAL MEANS		16.9	18.4	56.6	16.2	368.8	4.3
LSD (0.05)		1.4	2.9	1.6	0.5	28.6	4.0
C.V.%		5.0	9.6	1.7	1.9	4.7	57.7
P-VALUE (Varieties)		0.0070	<.0001	<.0001	<.0001	<.0001	<.0001

1/ Volumetric yields are based on plot weights adjusted to uniform 13 percent grain moisture and 60 lbs/bu as the standard test weight for wheat

2/ Protein values are adjusted to 13 percent grain moisture.

3/ FN is the falling number value reported in seconds adjusted to 14 percent flour moisture.

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 (21-9951-SW)

Seeding Date:	May 5, 2021
Harvest Date:	August 17, 2021
Fertility:	100-20-10-10 side banded
System:	No Till
Herbicide:	Vendetta (16oz/ac), Affinity (0.4oz/ac), Discover (12.8oz/ac)
Insecticide:	none
Previous Crop:	Chemical Fallow - Durum
Precipitation:	3.48" seeding to harvest maturity

**TABLE 2. Nine-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at the Max Cederberg Farm, Turner. Northern Agricultural Research Center. Havre, Montana. 2012-2021. (Exp# 9951-SW)**

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)					TEST WEIGHT (Pounds Per Bushel)			9-YR COMP. AVE YIELD 5/	9-YR COMP. TEST WT 5/						
		2017	2018	2019	2020	2021	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	AVE. for YEARS TESTED 3/			% of CHECK TEST WT 4/					
PI642366 VIDA (+)	9	25.1	39.3	58.5	56.8	20.4	41.3	100.0	<b>41.3</b>	59.3	60.4	57.0	58.7	57.7	59.2	100.0	<b>59.2</b>
PI676978 LANNING (+)	7	19.6	39.5	55.8	54.8	18.8	39.4	97.8	<b>40.5</b>	59.8	59.3	56.0	58.7	56.6	58.4	99.5	<b>58.9</b>
PI 690450 DAGMAR (+)	4		35.4	56.1	53.6	21.1	41.5	94.9	<b>39.3</b>		60.5	58.1	59.3	58.5	59.1	101.1	<b>59.9</b>
LIMAGR143 LCS PRO (P+)	4	19.0	39.3	58.0	51.4		42.0	93.4	<b>38.6</b>	60.5	60.4	56.5	59.3		59.2	100.5	<b>59.6</b>
PI679964 NS PRESSER CLP (P+)	6	25.4	40.4	57.1	46.1	23.8	36.8	92.6	<b>38.3</b>	59.2	59.4	54.9	56.6	58.2	56.8	97.7	<b>57.9</b>
ND 695 REEDER (+)	9	21.2	36.8	50.8	54.4	17.9	38.0	92.0	<b>38.0</b>	59.3	60.0	57.0	58.3	57.0	59.5	100.4	<b>59.5</b>
PI671855 EGAN (+)	7	18.9	35.0	49.8	48.3	17.0	36.8	91.3	<b>37.7</b>	58.6	58.1	56.1	56.5	56.4	57.7	98.2	<b>58.2</b>
MT 1716 MT SIDNEY (++)	3			51.6	51.7	17.8	40.4	89.3	<b>36.9</b>			58.0	59.8	58.3	58.7	101.6	<b>60.2</b>
WA 8166 ALUM (+)	6	18.8	37.8	52.8	45.8	14.6	35.2	88.6	<b>36.6</b>	60.6	60.8	58.2	58.2	57.8	59.1	101.5	<b>60.1</b>
PI660981 DUCLAIR (+)(saw fly tol)	9	22.1	28.7	53.7	49.7	15.8	36.6	88.4	<b>36.6</b>	58.8	59.3	56.1	58.0	53.7	58.0	97.9	<b>58.0</b>
IMICHT-79 WB9879CLP (P+)	9	19.5	32.6	53.8	50.1	18.8	36.3	87.8	<b>36.3</b>	59.6	60.5	57.1	58.8	57.1	59.3	100.2	<b>59.3</b>
BZ996434 CORBIN (P+)	9	16.1	30.2	52.2	48.3	17.1	35.8	86.5	<b>35.8</b>	60.8	60.9	57.2	59.1	57.6	59.8	101.0	<b>59.8</b>
AGRIPR141 SY INGMAR (P+)	5	15.8	39.0	48.2	51.6	17.7	34.4	86.0	<b>35.6</b>	61.3	61.9	58.9	59.8	58.5	60.1	102.5	<b>60.7</b>
BZ902413 WB GUNNISON (P+)(sawfly tol)	9	20.3	37.7	47.6	50.7	15.3	35.1	84.9	<b>35.1</b>	59.9	60.8	58.8	59.2	56.7	60.0	101.3	<b>60.0</b>
01S0263-28 SY SOREN (P+)	7	18.5	32.1	52.1	53.3	15.8	34.0	84.5	<b>34.9</b>	60.8	61.5	58.1	59.2	56.6	59.1	100.6	<b>59.6</b>
PI633974 CHOTEAU (+)(saw fly tol)	9	17.3	37.0	53.1	46.4	17.5	34.8	84.2	<b>34.8</b>	59.7	60.2	56.2	58.5	55.9	58.7	99.1	<b>58.7</b>
0150042-10 BRENNAN (P+)	7	11.5	37.2	51.6	46.4	13.8	32.9	81.6	<b>33.8</b>	61.0	61.5	59.7	60.8	56.3	60.4	102.8	<b>60.9</b>
CI13596 FORTUNA (saw fly tol)	8	15.7	28.8	46.9	43.5		33.7	79.9	<b>33.0</b>	59.6	60.8	58.0	58.6		60.0	100.9	<b>59.8</b>
MEANS (For Entries Listed)		19.1	35.7	52.8	50.2	17.7			<b>36.8</b>	59.9	60.4	57.3	58.7	57.1			<b>59.5</b>
6/ Growing Season Precipitation (in.)		2.3	4.0	3.0	5.9	3.5	6.4										
Soil PAW (in.) to SD @ Planting		n/a	n/a	6.3	n/a	n/a	7.4										
Total Plant Available Water (in.)		n/a	n/a	9.3	n/a	n/a	16.4										
Soil NO3 (lbs.) to SD at Planting		n/a	n/a	n/a	n/a	n/a	45										
SD (Sampling Depth in Inches)		n/a	n/a	19	n/a	n/a	43										
Fertilizer Applied	(# N)	100	100	100	100	100	100										
	(# P2O5)	20	20	20	20	20	22										
	(# K2O)	10	10	10	10	10	12										
	(# S)	0	10	10	10	10	5										

Check variety is Vida.

1/ See MCES Bulletin 1093 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/crops/index.html> 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. No harvest in 2014 due to hail.

4/ Percent of Vida yield or test weight 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 yield or test weight of a given entry for years tested, y = average yield or test weight for Vida for the same years, and z = 9-Yr average yield or test weight for the check variety Vida.

6/ Seeding to 14 days prior to harvest maturity.

**TABLE 3. Nine-Year Protein and Sawfly Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at the Max Cederberg Farm, Turner. Northern Agricultural Research Center. Havre, Montana. 2012-2021. (Exp# 9951-SW)**

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ PROTEIN % (Adjusted to 13% grain moisture)					SAWFLY RATING (% of cut and lodged stems)										
		2017	2018	2019	2020	2021	AVE	%	9-YR	2017	2018	2019	2020	2021	AVE	%	9-YR
							for	of	COMP.						TESTED	CHECK	AVE
3/	3/	4/	5/	3/	4/	5/											
BZ902413 WB GUNNISON (P+)(sawfly tol)	9	15.8	15.2	14.3	15.0	15.5	14.6	99.0	<b>14.6</b>	0.3	0.7	0.3	0.0	0.7	0.5	12.1	<b>0.5</b>
IMICHT-79 WB9879CLP (P+)	9	17.2	17.1	15.8	16.0	16.2	15.7	106.4	<b>15.7</b>	0.0	0.0	0.3	0.0	1.0	2.2	51.7	<b>2.2</b>
BZ996434 CORBIN (P+)	9	16.9	16.5	15.5	15.7	16.4	15.3	103.8	<b>15.3</b>	0.3	1.0	1.0	0.0	2.3	2.8	64.7	<b>2.8</b>
CI 13596 FORTUNA (saw fly tol)	8	16.0	15.7	15.1	15.4		15.0	102.1	<b>15.1</b>	0.0	0.7	0.0	0.7		3.1	65.8	<b>2.8</b>
PI633974 CHOTEAU (+)(saw fly tol)	9	17.1	16.8	15.5	16.0	16.3	15.6	105.9	<b>15.6</b>	0.0	0.0	0.3	0.0	0.7	4.0	93.1	<b>4.0</b>
PI660981 DUCLAIR (+)(saw fly tol)	9	15.6	16.2	15.3	15.7	16.4	15.2	102.8	<b>15.2</b>	0.3	0.3	0.3	0.3	1.0	4.0	94.0	<b>4.0</b>
PI642366 VIDA (+)	9	15.4	15.3	15.3	14.6	15.3	14.8	100.0	<b>14.8</b>	0.3	0.0	0.7	0.3	0.7	4.3	100.0	<b>4.3</b>
ND 695 REEDER (+)	9	16.5	16.5	15.9	15.8	16.1	15.5	104.8	<b>15.5</b>	2.3	0.7	0.7	1.0	3.7	5.2	121.6	<b>5.2</b>
MT 1716 MT SIDNEY (++)	3			15.6	15.5	16.5	15.9	105.4	<b>15.6</b>			0.7	0.0	2.0	0.9	159.9	<b>6.9</b>
PI 690450 DAGMAR (+)	4		16.3	15.5	16.0	16.2	16.0	105.8	<b>15.6</b>		0.7	0.7	0.0	1.7	0.8	179.9	<b>7.7</b>
AGRIPR141 SY INGMAR (P+)	5	17.6	16.5	15.7	16.0	16.3	16.4	108.2	<b>16.0</b>	0.0	0.0	0.3	0.3	5.0	1.1	283.3	<b>12.2</b>
LIMAGR143 LCS PRO (P+)	4	17.3	16.1	15.3	15.8		16.1	106.5	<b>15.7</b>	2.3	0.7	1.0	0.7		1.2	350.4	<b>15.1</b>
WA 8166 ALUM (+)	6	16.8	16.0	15.4	15.8	16.5	15.9	104.6	<b>15.4</b>	0.3	0.7	0.3	0.7	6.7	1.4	433.8	<b>18.6</b>
01S0263-28 SY SOREN (P+)	7	17.5	17.0	15.7	16.1	17.3	16.3	108.8	<b>16.1</b>	1.0	0.7	1.0	0.7	6.7	1.4	499.5	<b>21.5</b>
PI679964 NS PRESSER CLP (P+)	6	16.2	15.9	15.2	16.7	14.9	15.7	103.3	<b>15.3</b>	3.7	0.3	0.3	1.0	5.0	1.7	517.2	<b>22.2</b>
PI676978 LANNING (+)	7	17.1	16.9	15.6	15.9	15.9	15.9	105.6	<b>15.6</b>	0.7	1.0	0.7	0.3	10.0	1.8	632.7	<b>27.2</b>
PI671855 EGAN (+)	7	18.8	18.1	16.7	17.1	17.5	17.2	114.3	<b>16.9</b>	0.7	1.0	0.7	0.7	10.0	1.9	649.4	<b>27.9</b>
0150042-10 BRENNAN (P+)	7	17.7	17.4	15.4	16.0	16.8	16.2	107.9	<b>15.9</b>	0.0	0.7	1.0	1.0	11.7	2.0	716.0	<b>30.8</b>
MEANS (For Entries Listed)		16.8	16.4	15.5	15.8	16.2			<b>15.5</b>	0.8	0.5	0.6	0.4	4.3			<b>12.0</b>
6/ Growing Season Precipitation (in.)		2.3	4.0	3.0	5.9	3.5	6.4										
Soil PAW (in.) to SD @ Planting		n/a	n/a	6.3	n/a	n/a	7.4										
Total Plant Available Water (in.)		n/a	n/a	9.3	n/a	n/a	16.4										
Soil NO3 (lbs.) to SD at Planting		n/a	n/a	n/a	n/a	n/a	45										
SD (Sampling Depth in Inches)		n/a	n/a	19	n/a	n/a	43										
Fertilizer Applied	(# N)	100	100	100	100	100	100										
	(# P2O5)	20	20	20	20	20	22										
	(# K2O)	10	10	10	10	10	12										
	(# S)	0	10	10	10	10	5										

Check variety is Vida.

1/ See MCES Bulletin 1093 or the Plant Sciences & Plant Pathology website at <http://plantsciences.montana.edu/crops/index.html> 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. No harvest in 2014 due to hail.

4/ Percent of Vida protein or saw fly rating 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 protein or saw fly rating of a given entry for years tested, y = average protein or saw fly rating for Vida for the same years, and z = 9-Yr average protein or saw fly rating for the check variety Vida.

6/ Seeding to 14 days prior to harvest maturity.

**TABLE 4. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at the Flansaa-Lumsden Farm, Loring. Northern Agricultural Research Center. Havre, Montana. 2021. (Exp# 21-9955-SW)**

ID	CULTIVAR or SELECTION	PLNT HT Inches	1/	TEST WT Lbs/Bu	2/	3/	4/
			YIELD Bu/Ac		PROTEIN %	FN Seconds	SAWFLY %
ALUM	WSCIA	20.4	31.0	<b>60.6</b>	15.8	424	0.7
BRENNAN	AGRIPR 10	17.8	28.9	59.4	16.4	429	0.7
CHOTEAU	PI 633974	20.2	32.4	58.1	16.0	419	0.7
CORBIN	BZ 996434	19.3	31.3	59.3	16.2	389	0.0
DAGMAR	PI 690450	<b>22.1</b>	32.9	59.2	16.1	419	0.3
DUCLAIR	PI 660981	20.2	30.0	57.0	16.2	373	0.3
EGAN	PI 671855	19.8	32.5	57.6	<b>17.5</b>	<b>493</b>	0.7
LANNING	PI 676978	<b>21.3</b>	<b>36.3</b>	56.6	16.1	399	2.0
MT SIDNEY	MT 1716	19.6	33.8	59.5	15.9	451	0.3
NS PRESSER CLP	PI 679964	20.6	32.1	58.0	15.1	395	0.7
REEDER	ND 695	19.9	30.1	58.5	16.3	378	0.7
SY INGMAR	AGRIPR141	19.9	28.5	58.4	16.6	434	0.0
SY SOREN	AGRIPR 14	19.4	31.4	58.4	16.6	446	1.0
VIDA	PI 642366	<b>21.1</b>	35.1	58.9	15.0	370	0.7
WB GUNNISON	BZ 92413R	19.1	28.9	59.2	15.4	427	0.3
WB9879CLP	WB9879CLP	<b>21.4</b>	33.7	57.9	16.3	446	0.0
MT 1809	VIDA/MO 09/3-4	20.0	34.8	57.0	16.5	419	2.3
MT 1855	MT1053/MO8/3-4	<b>20.9</b>	29.3	58.8	16.0	437	0.7
MT 1904	VIDA//MT1018//CHOTEAU/YELLOWSTC	<b>20.9</b>	29.8	<b>60.6</b>	15.9	398	0.0
MT 1927	MT1203/MT1234	<b>20.7</b>	33.6	56.8	17.0	393	0.0
MT 1931	MT1316/MT1319	17.4	<b>38.4</b>	56.8	15.7	365	2.3
MT 1934	VIDA/MT1319	18.4	<b>37.4</b>	57.5	15.4	367	0.7
MT 1938	MT1316//MT1018//CHOTEAU/YELLOW	<b>20.9</b>	<b>37.0</b>	57.5	15.7	375	0.3
MT 1939	MT1316//MT1018//CHOTEAU/YELLOW	19.4	<b>36.9</b>	57.3	15.5	385	0.7
MT 1951	MT1316/EGAN	20.3	31.8	54.9	<b>17.2</b>	401	0.3
EXPERIMENTAL MEANS		20.0	32.7	58.2	16.1	409.3	0.7
LSD (0.05)		1.4	2.8	0.7	0.4	23.0	1.6
C.V.%		4.4	5.2	0.8	1.3	3.4	148.0
P-VALUE (Varieties)		<.0001	<.0001	<.0001	<.0001	<.0001	0.1680

1/ Volumetric yields are based on plot weights adjusted to uniform 13 percent grain moisture and 60 lbs/bu as the standard test weight for wheat

2/ Protein values are adjusted to 13 percent grain moisture.

3/ FN is the falling number value reported in seconds adjusted to 14 percent flour moisture.

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 (21-9955-SW)

Seeding Date: May 4, 2021  
 Harvest Date: August 17, 2021  
 Fertility: 100-20-10-10 side banded  
 System: Minimum Till  
 Herbicide: OpenSky (16 oz/ac)  
 Insecticide: none  
 Previous Crop: Chemical Fallow - Spring Wheat  
 Precipitation: 5.79" seeding to harvest maturity

**TABLE 5. Nine-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at the Flansaa/Lumsden Farm, Loring. Northern Agricultural Research Center. Havre, Montana. 2012-2021. (Exp# 9955-SW)**

2/ VARIETY or SELECTION	No. of YEARS TESTED	1/ YIELD (Bushels Per Acre)							TEST WEIGHT (Pounds Per Bushel)								
		2017	2018	2019	2020	2021	AVE. for YEARS TESTED	% of CHECK YIELD	9-YR COMP. AVE. YIELD	2017	2018	2019	2020	2021	AVE. for YEARS TESTED	% of CHECK TEST WT	9-YR COMP. AVE. TEST WT
	3/	4/					3/	5/	6/	4/					3/	5/	6/
PI642366 VIDA (+)	9		38.7	65.8	53.4	35.1	50.0	100.0	<b>50.0</b>		61.5	59.3	61.0	58.9	59.9	100.0	<b>59.9</b>
PI676978 LANNING (+)	6		36.7	56.6	49.0	36.3	47.3	96.4	<b>48.2</b>		60.9	58.7	61.1	56.6	59.6	99.1	<b>59.4</b>
PI679964 NS PRESSER CLP (+)	5		40.2	63.4	43.7	32.1	44.1	91.1	<b>45.5</b>		61.1	58.4	59.1	58.0	58.9	97.9	<b>58.6</b>
WA 8166 ALUM (+)	5		35.9	56.6	45.1	31.0	44.0	90.7	<b>45.3</b>		62.9	60.4	61.5	60.6	61.5	102.3	<b>61.2</b>
ND 695 REEDER (+)	9		36.7	53.1	44.7	30.1	44.8	89.6	<b>44.8</b>		61.3	59.3	61.1	58.5	60.2	100.4	<b>60.2</b>
PI 690450 DA GMAR (+)	4		36.0	55.4	45.2	32.9	42.4	87.8	<b>43.9</b>		61.8	59.3	61.4	59.2	60.4	100.4	<b>60.2</b>
MT 1716 MT SIDNEY (++)	3			57.7	42.6	33.8	44.7	86.9	<b>43.4</b>			59.7	61.7	59.5	60.3	100.9	<b>60.4</b>
IMICHT-79 WB9879CLP (P+)	9		31.5	50.8	43.4	33.7	41.9	83.9	<b>41.9</b>		61.0	58.7	60.4	57.9	59.2	98.9	<b>59.2</b>
BZ996434 CORBIN (P+)	9		34.6	52.7	39.7	31.3	41.8	83.7	<b>41.8</b>		62.0	59.2	61.6	59.3	60.2	100.5	<b>60.2</b>
LIMAGR143 LCS PRO (P+)	3		34.9	56.2	40.1		43.7	83.1	<b>41.5</b>		61.4	58.9	60.8		60.4	99.7	<b>59.7</b>
O1S0263-28 SY SOREN (P+)	6		28.9	56.0	38.5	31.4	40.6	82.8	<b>41.4</b>		62.2	59.8	61.9	58.4	60.5	100.6	<b>60.3</b>
AGRIPR141 SY INGMAR (P+)	4		32.7	55.1	43.1	28.5	39.9	82.6	<b>41.3</b>		62.3	60.5	62.3	58.4	60.9	101.2	<b>60.6</b>
PI660981 DUCLAIR (+)(saw fly tol)	9		31.4	53.6	35.2	30.0	40.9	81.9	<b>40.9</b>		60.0	58.2	59.3	57.0	58.5	97.7	<b>58.5</b>
PI633974 CHOTEAU (+)(saw fly tol)	9		31.9	49.2	41.3	32.4	40.6	81.3	<b>40.6</b>		60.6	58.8	60.5	58.1	59.1	98.6	<b>59.1</b>
PI671855 EGAN (+)	7		28.0	44.1	40.2	32.5	40.3	80.9	<b>40.4</b>		59.2	58.1	58.8	57.6	58.4	97.8	<b>58.6</b>
BZ902413 WB GUNNISON (P+)(sawfly tol)	9		31.7	49.0	39.0	28.9	40.4	80.8	<b>40.4</b>		62.0	60.6	61.6	59.2	60.5	101.0	<b>60.5</b>
CI13596 FORTUNA (saw fly tol)	8		28.9	47.2	35.7		38.8	74.9	<b>37.4</b>		61.1	58.9	60.6		59.9	99.8	<b>59.8</b>
O150042-10 BRENNAN (P+)	7		21.8	44.2	33.0	28.9	36.3	72.8	<b>36.4</b>		62.0	60.1	61.2	59.4	60.4	101.3	<b>60.7</b>
MEANS (For Entries Listed)			33.0	53.7	41.8	31.8			<b>42.5</b>		61.4	59.3	60.9	58.5			<b>59.8</b>
7/ Growing Season Precipitation (in.)		n/a	n/a	8.8	n/a	5.8	7.6										
Soil PAW (in.) to SD @ Planting		n/a	n/a	6.2	8.9	8.6	7.8										
Total Plant Available Water (in.)		n/a	n/a	15.0	n/a	14.4	15.0										
Soil NO3 (lbs.) to SD at Planting		n/a	n/a	n/a	23	36	37										
SD (Sampling Depth in Inches)		n/a	n/a	33	48	48	43										
Fertilizer Applied																	
	(# N)	100	100	100	100	100	100										
	(# P <sub>2</sub> O <sub>5</sub> )	20	20	20	20	20	22										
	(# K <sub>2</sub> O)	10	10	10	10	10	12										
	(# S)	0	10	10	10	10	5										

Check variety is Vida.

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/ No harvest in 2017 due to hail.

5/ Percent of Vida 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 Vida for the same years, and z = 9-Yr average yield or test weight for the check variety Vida.

7/ Seeding to 14 days prior to harvest maturity.



**TABLE 6. Nine-Year Protein and Sawfly Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at the Flansaa/Lumsden Farm, Loring, Northern Agricultural Research Center, Havre, Montana, 2012-2021. (Exp# 9955-SW)**

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ PROTEIN % (Adjusted to 13% grain moisture)							SAWFLY RATING (% of cut and lodged stems)								
							AVE. for YEARS TESTED 3/	% of CHECK PROTEIN 5/	9-YR COMP. AVE PROTEIN 6/						AVE. for YEARS TESTED 3/	% of CHECK SAWFLY 5/	9-YR COMP. AVE SAWFLY 6/
		2017 4/	2018	2019	2020	2021				2017 4/	2018	2019	2020	2021			
BZ902413 WB GUNNISON (P+)(sawfly tol)	9	14.9	14.2	14.8	15.4	14.4	103.0	<b>14.4</b>	0.3	0.0	0.3	0.3	0.3	23.7	<b>0.3</b>		
IMICHT-79 WB9879CLP (P+)	9	16.6	14.8	16.2	16.3	15.4	109.9	<b>15.4</b>	0.3	0.0	0.7	0.0	0.4	29.0	<b>0.4</b>		
BZ996434 CORBIN (P+)	9	16.1	13.8	15.7	16.2	14.8	106.1	<b>14.8</b>	0.3	0.0	0.0	0.0	0.6	40.1	<b>0.6</b>		
AGRIPR141 SY INGMAR (P+)	4	16.7	14.0	16.0	16.6	15.8	112.5	<b>15.7</b>	0.3	0.0	0.7	0.0	0.3	50.0	<b>0.7</b>		
PI690450 DAGMAR (+)	4	16.3	13.8	15.7	16.1	15.5	110.1	<b>15.4</b>	0.0	0.0	0.7	0.3	0.3	50.0	<b>0.7</b>		
PI660981 DUCLAIR (+)(saw fly tol)	9	15.8	13.7	15.6	16.2	14.9	106.4	<b>14.9</b>	0.0	0.0	0.3	0.3	0.9	60.7	<b>0.9</b>		
PI633974 CHOTEAU (+)(saw fly tol)	9	16.2	14.5	15.4	16.0	15.1	108.1	<b>15.1</b>	0.0	0.0	1.0	0.7	1.1	79.4	<b>1.1</b>		
MT 1716 MT SIDNEY (++)	3		13.8	15.9	15.9	15.2	109.5	<b>15.3</b>		0.0	1.0	0.3	0.4	79.9	<b>1.1</b>		
WA 8166 ALUM (+)	5	15.3	13.7	14.4	15.8	14.8	104.6	<b>14.6</b>	0.3	0.0	0.7	0.7	0.3	83.3	<b>1.2</b>		
CI13596 FORTUNA (saw fly tol)	8	15.8	13.9	15.2		14.6	105.6	<b>14.8</b>	0.3	1.0	1.0		1.3	89.4	<b>1.3</b>		
PI642366 VIDA (+)	9	14.6	12.6	14.0	15.0	14.0	100.0	<b>14.0</b>	0.3	0.0	1.0	0.7	1.4	100.0	<b>1.4</b>		
PI679964 NS PRESSER CLP (P+)	5	14.9	12.6	16.0	15.1	14.6	103.4	<b>14.4</b>	0.7	0.0	1.0	0.7	0.5	116.7	<b>1.6</b>		
01S0263-28 SY SOREN (P+)	6	17.6	14.8	16.2	16.6	16.0	114.0	<b>15.9</b>	0.7	0.0	1.0	1.0	0.4	133.5	<b>1.9</b>		
0150042-10 BRENNAN (P+)	7	17.5	15.2	17.0	16.4	16.0	113.2	<b>15.8</b>	1.7	0.0	1.0	0.7	0.5	143.0	<b>2.0</b>		
ND 695 REEDER (+)	9	15.6	14.0	14.9	16.3	15.0	107.0	<b>15.0</b>	2.0	0.0	1.0	0.7	2.4	171.7	<b>2.4</b>		
PI671855 EGAN (+)	7	17.7	16.1	16.7	17.5	16.8	119.2	<b>16.7</b>	2.3	0.0	1.0	0.7	0.6	185.9	<b>2.6</b>		
LIMAGR143 LCS PRO (P+)	3	16.5	13.5	15.3		15.1	110.0	<b>15.4</b>	0.7	0.0	2.3		1.0	225.2	<b>3.2</b>		
PI676978 LANNING (+)	6	15.7	13.9	15.1	16.1	15.0	107.0	<b>15.0</b>	2.3	0.0	1.0	2.0	0.9	266.9	<b>3.7</b>		
MEANS (For Entries Listed)		16.1	14.1	15.6	16.1			<b>15.1</b>	0.7	0.1	0.9	0.6			<b>1.5</b>		
7/ Growing Season Precipitation (in.)		n/a	n/a	8.8	n/a	5.8	7.6										
Soil PAW (in.) to SD @ Planting		n/a	n/a	6.2	8.9	8.6	7.8										
Total Plant Available Water (in.)		n/a	n/a	15.0	n/a	14.4	15.0										
Soil NO3 (lbs.) to SD at Planting		n/a	n/a	n/a	23	36	37										
SD (Sampling Depth in Inches)		n/a	n/a	33	48	48	43										
Fertilizer Applied	(# N)	100	100	100	100	100	100										
	(# P <sub>2</sub> O <sub>5</sub> )	20	20	20	20	20	22										
	(# K <sub>2</sub> O)	10	10	10	10	10	12										
	(# S)	0	10	10	10	10	5										

Check variety is Vida.

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/ No harvest in 2017 due to hail.

5/ Percent of Vida protein or saw fly rating 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 protein or saw fly rating of a given entry for years tested, y = average protein or saw fly rating for Vida for the same years, and z = 9-Yr average protein or saw fly rating for the check variety Vida.

7/ 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. 2021. (Exp# 21-9957-SW)**

ID	CULTIVAR or SELECTION	PLNT HT	1/ YIELD	TEST WT	2/ PROTEIN	3/ FN	4/ SAWFLY	5/ Grasshopper
		Inches	Bu/Ac	Lbs/Bu	%	Seconds	%	%
ALUM	WSCIA	21.4	15.1	55.9	15.8	412	23.3	<b>0.3</b>
BRENNAN	AGRIPR 10	21.8	15.3	<b>57.5</b>	15.6	433	46.7	<b>8.7</b>
CHOTEAU	PI 633974	21.4	13.9	54.5	15.6	399	<b>5.3</b>	<b>12.0</b>
CORBIN	BZ 996434	<b>23.6</b>	<b>19.6</b>	56.3	15.9	357	<b>12.0</b>	<b>0.3</b>
DAGMAR	PI 690450	21.7	17.0	56.0	15.8	387	<b>11.7</b>	<b>2.0</b>
DUCLAIR	PI 660981	<b>23.3</b>	15.8	53.1	<b>16.5</b>	374	12.0	<b>5.0</b>
EGAN	PI 671855	18.8	11.8	52.1	<b>16.6</b>	<b>459</b>	45.0	60.0
LANNING	PI 676978	19.0	10.5	53.5	15.5	389	66.7	70.0
MT SIDNEY	MT 1716	<b>22.4</b>	12.7	55.2	15.3	437	23.3	43.3
NS PRESSER CLP	PI 679964	<b>22.9</b>	12.5	52.5	15.6	417	25.0	35.0
REEDER	ND 695	<b>22.6</b>	10.9	53.8	15.7	380	51.7	60.0
SY INGMAR	AGRIPR141	19.7	9.1	56.4	15.7	406	40.0	66.7
SY SOREN	AGRIPR 14	<b>22.3</b>	15.8	55.1	16.1	<b>468</b>	43.3	<b>22.0</b>
VIDA	PI 642366	<b>22.4</b>	15.4	54.4	15.1	400	21.7	<b>25.3</b>
WB GUNNISON	BZ 92413R	20.1	<b>18.0</b>	<b>56.5</b>	15.3	420	<b>0.0</b>	<b>0.0</b>
WB9879CLP	WB9879CLP	21.3	15.3	54.2	16.2	426	<b>2.3</b>	<b>2.0</b>
MT 1809	VIDA/MO 09/3-4	<b>22.2</b>	15.2	53.2	16.3	439	26.7	<b>0.3</b>
MT 1855	MT1053/MO8/3-4	<b>22.5</b>	11.8	54.5	15.4	<b>470</b>	<b>10.3</b>	<b>25.0</b>
MT 1904	VIDA//MT1018//CHOTEAU/YELLOWSTC	19.3	14.0	56.1	16.2	414	<b>1.0</b>	<b>0.3</b>
MT 1927	MT1203/MT1234	<b>22.9</b>	15.7	51.7	<b>17.0</b>	381	<b>13.3</b>	<b>6.7</b>
MT 1931	MT1316/MT1319	<b>22.0</b>	13.2	55.7	14.7	324	71.7	45.0
MT 1934	VIDA/MT1319	<b>23.6</b>	14.4	55.0	15.3	359	43.3	<b>25.0</b>
MT 1938	MT1316//MT1018//CHOTEAU/YELLOW	<b>22.1</b>	16.8	56.1	15.0	364	26.7	<b>23.3</b>
MT 1939	MT1316//MT1018//CHOTEAU/YELLOW	21.8	16.5	55.1	14.7	379	23.3	40.0
MT 1951	MT1316/EGAN	21.7	12.6	52.9	16.4	395	40.0	<b>26.7</b>
EXPERIMENTAL MEANS		21.7	14.4	54.7	15.7	403.6	27.5	24.2
LSD (0.05)		1.7	2.5	1.1	0.6	23.6	14.8	27.0
C.V.%		4.7	10.8	1.2	2.4	3.6	32.8	67.9
P-VALUE (Varieties)		<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

1/ Volumetric yields are based on plot weights adjusted to uniform 13 percent grain moisture and 60 lbs/bu as the standard test weight for wheat

2/ Protein values are adjusted to 13 percent grain moisture.

3/ FN is the falling number value reported in seconds adjusted to 14 percent flour moisture.

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

5/ Grasshopper damage is reported as the percentage of missing heads due to chewed and broken 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 (21-9957-SW)

Seeding Date:	April 21, 2021
Harvest Date:	August 12, 2021
Fertility:	100-20-10-10 side banded
System:	No Till
Herbicide:	Vendetta (16 oz/ac)
Insecticide:	none
Previous Crop:	Chemical Fallow - Spring Wheat
Precipitation:	n/a

**TABLE 8. Nine-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. 2013-2021. (Exp# 9957-SW)**

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)					TEST WEIGHT (Pounds Per Bushel)					9-YR COMP. AVE. YIELD 5/	9-YR COMP. AVE. TEST WT 5/				
		2017	2018	2019	2020	2021	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	2017	2018	2019			2020	2021	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/
PI 690450 DAGMAR (+)	4		37.8	51.9	52.1	17.0	39.7	106.0	<b>40.3</b>		55.3	56.3	60.4	56.0	57.0	102.4	<b>56.8</b>
PI642366 VIDA (+)	9	32.0	33.5	48.8	52.2	15.4	38.0	100.0	<b>38.0</b>	53.5	52.8	55.8	59.6	54.4	55.5	100.0	<b>55.5</b>
PI679964 NS PRESSER CLP (P+)	6	32.8	31.9	49.2	49.7	12.5	31.2	95.2	<b>36.2</b>	52.6	49.9	54.4	56.5	52.5	52.9	96.1	<b>53.3</b>
BZ996434 CORBIN (P+)	9	30.0	32.7	46.8	50.2	19.6	35.7	93.7	<b>35.7</b>	53.5	55.4	55.9	59.8	56.3	56.1	101.1	<b>56.1</b>
BZ92413R WB GUNNISON (P+)(sawfly tol)	9	33.7	31.3	48.5	50.5	18.0	35.6	93.6	<b>35.6</b>	54.7	54.3	56.3	59.3	56.5	56.6	102.0	<b>56.6</b>
0150042-10 BRENNAN (P+)	8	31.1	35.2	42.8	52.6	15.3	31.5	92.8	<b>35.3</b>	56.1	57.1	57.2	61.4	57.5	57.5	104.7	<b>58.1</b>
PI676978 LANNING (+)	7	30.9	33.2	45.3	42.6	10.5	30.2	92.5	<b>35.2</b>	50.4	50.2	52.6	58.4	53.5	52.8	96.2	<b>53.4</b>
PI660981 DUCLAIR (+)(saw fly tol)	9	33.2	31.2	47.8	48.0	15.8	34.9	91.8	<b>34.9</b>	52.3	53.3	55.4	58.2	53.1	54.8	98.8	<b>54.8</b>
PI671855 EGAN (+)	8	25.6	31.4	43.3	53.3	11.8	30.9	91.0	<b>34.6</b>	51.0	51.6	53.2	56.7	52.1	53.0	96.5	<b>53.5</b>
IMICHT-79 WB9879CLP (P+)	9	26.7	29.9	45.9	50.3	15.3	33.8	89.0	<b>33.8</b>	53.6	54.6	56.2	59.3	54.2	55.5	100.1	<b>55.5</b>
LIMAGR143 LCS PRO (P+)	4	33.2	33.3	40.8	40.3		36.9	88.6	<b>33.7</b>	53.3	51.7	54.5	58.3		54.5	98.2	<b>54.5</b>
WA 8166 ALUM (+)	6	31.0	31.4	37.9	46.7	15.1	28.9	88.2	<b>33.5</b>	55.3	53.3	53.5	57.8	55.9	54.8	99.5	<b>55.2</b>
AGRIPR141 SY INGMAR (P+)	5	29.1	37.9	42.3	41.1	9.1	31.9	87.7	<b>33.4</b>	53.6	54.2	56.0	57.9	56.4	55.6	100.7	<b>55.9</b>
PI633974 CHOTEAU (+)(saw fly tol)	9	25.5	29.6	48.5	45.3	13.9	32.5	85.4	<b>32.5</b>	52.8	53.7	54.7	59.0	54.5	55.1	99.3	<b>55.1</b>
01S0263-28 SY SOREN (P+)	7	28.6	35.5	28.3	45.0	15.8	27.3	83.5	<b>31.8</b>	54.0	53.3	53.2	58.6	55.1	54.5	99.3	<b>55.1</b>
MT 1716 MT SIDNEY (++)	3			32.6	50.9	12.7	32.1	82.6	<b>31.4</b>			54.7	60.8	55.2	56.9	100.6	<b>55.8</b>
ND 695 REEDER (+)	9	29.3	32.1	25.7	36.0	10.9	30.1	79.2	<b>30.1</b>	52.8	53.4	51.5	58.4	53.8	55.1	99.3	<b>55.1</b>
CI13596 FORTUNA (saw fly tol)	8	27.6	31.5	31.8	40.4		31.1	76.2	<b>29.0</b>	54.8	54.5	53.7	58.3		56.1	100.8	<b>55.9</b>
MEANS (For Entries Listed)		30.0	32.9	42.1	47.1	14.3				34.2	53.4	53.4	54.7				55.3
6/ Growing Season Precipitation (in.)		n/a	n/a	n/a	n/a	n/a	6.7										
Soil PAW (in.) to SD @ Planting		n/a	n/a	n/a	9.81	7.94	9.1										
Total Plant Available Water (in.)		n/a	n/a	n/a	9.81	n/a	14.5										
Soil NO3 (lbs.) to SD at Planting		n/a	n/a	n/a	197	193	141										
SD (Sampling Depth in Inches)		n/a	n/a	n/a	48	45	48										
Fertilizer Applied	(# N)	100	100	100	100	100	103										
	(# P <sub>2</sub> O <sub>5</sub> )	20	20	20	20	20	20										
	(# K <sub>2</sub> O)	10	10	10	10	10	10										
	(# S)	0	10	10	10	10	6										

Check variety is Vida.

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 Vida yield or test weight 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 yield or test weight of a given entry for years tested, y = average yield or test weight for Vida for the same years, and z = 9-Yr average yield or test weight for the check variety Vida.

6/ Seeding to 14 days prior to harvest maturity.

**TABLE 9. Nine-Year Protein and 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. 2013-2021. (Exp# 9957-SW)**

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ PROTEIN % (Adjusted to 13% grain moisture)					SAWFLY RATING (% of cut and lodged stems)										
							AVE	%	9-YR								
		2017	2018	2019	2020	2021	for YEARS TESTED 3/	of CHECK PROTEIN 4/	COMP. AVE PROTEIN 5/	AVE	%	9-YR					
					3/	4/	5/	for YEARS TESTED 3/	of CHECK SAWFLY 4/	COMP. AVE SAWFLY 5/							
BZ92413R WB GUNNISON (P+)(sawfly tol)	9	17.7	17.1	16.0	14.1	15.3	15.7	97.7	<b>15.7</b>	0.0	0.7	0.3	1.0	0.0	0.4	8.3	<b>0.4</b>
IMICHT-79 WB9879CLP (P+)	9	18.4	17.7	15.8	14.9	16.2	16.5	102.1	<b>16.5</b>	0.3	0.7	1.0	1.0	2.3	1.2	22.1	<b>1.2</b>
PI633974 CHOTEAU (+)(saw fly tol)	9	18.7	18.0	15.7	15.1	15.6	16.5	102.4	<b>16.5</b>	0.0	0.7	1.0	6.7	5.3	2.5	46.9	<b>2.5</b>
BZ996434 CORBIN (P+)	9	19.1	18.2	16.6	15.2	15.9	16.7	103.5	<b>16.7</b>	0.0	0.0	1.0	5.0	12.0	2.7	50.3	<b>2.7</b>
PI 690450 DAGMAR (+)	4		17.9	15.6	15.0	15.8	16.1	102.8	<b>16.6</b>		0.7	1.0	2.3	11.7	3.9	50.5	<b>2.7</b>
PI660981 DUCLAIR (+)(saw fly tol)	9	18.5	17.8	15.7	15.2	16.5	16.6	102.8	<b>16.6</b>	0.7	0.7	2.3	5.0	12.0	3.9	72.4	<b>3.9</b>
PI642366 VIDA (+)	9	18.3	17.5	15.7	14.2	15.1	16.1	100.0	<b>16.1</b>	0.3	0.3	4.0	5.0	21.7	5.4	100.0	<b>5.4</b>
CI13596 FORTUNA (saw fly tol)	8	17.7	17.2	16.3	15.2		16.4	101.1	<b>16.3</b>	0.3	1.0	6.7	6.7		3.3	100.0	<b>5.4</b>
WA 8166 ALUM (+)	6	18.4	18.6	16.6	14.7	15.8	16.9	102.6	<b>16.5</b>	2.3	2.3	4.0	10.0	23.3	7.8	129.3	<b>6.9</b>
PI679964 NS PRESSER CLP (P+)	6	18.4	17.7	15.2	15.6	15.6	16.8	101.9	<b>16.4</b>	2.3	1.0	5.0	21.7	25.0	9.6	157.8	<b>8.5</b>
MT 1716 MT SIDNEY (++)	3			16.1	14.5	15.3	15.3	101.9	<b>16.4</b>			10.0	18.3	23.3	17.2	168.5	<b>9.0</b>
AGRIPR141 SY INGMAR (P+)	5	18.5	18.0	15.8	15.0	15.7	16.6	102.6	<b>16.5</b>	6.7	6.7	5.3	16.7	40.0	15.1	240.4	<b>12.9</b>
0150042-10 BRENNAN (P+)	8	17.8	17.5	15.7	14.6	15.6	16.5	101.0	<b>16.3</b>	10.0	8.3	16.7	13.3	46.7	13.2	254.4	<b>13.7</b>
PI671855 EGAN (+)	8	20.7	19.9	17.0	15.6	16.6	18.2	110.9	<b>17.9</b>	6.7	3.7	11.7	25.0	45.0	13.9	267.2	<b>14.3</b>
01S0263-28 SY SOREN (P+)	7	18.5	18.4	16.5	15.3	16.1	17.4	105.8	<b>17.1</b>	6.7	6.7	11.7	16.7	43.3	16.0	270.2	<b>14.5</b>
ND 695 REEDER (+)	9	18.6	18.1	16.5	14.8	15.7	16.5	102.6	<b>16.5</b>	10.0	5.3	16.7	13.3	51.7	15.7	291.7	<b>15.7</b>
PI676978 LANNING (+)	7	19.0	18.8	15.6	14.8	15.5	17.0	103.4	<b>16.7</b>	8.3	2.3	6.7	6.7	66.7	20.1	340.3	<b>18.3</b>
LIMAGR143 LCS PRO (P+)	4	17.7	17.5	14.9	14.7		16.2	98.6	<b>15.9</b>	8.3	3.7	7.0	20.0		9.8	403.4	<b>21.7</b>
MEANS (For Entries Listed)		18.5	18.0	16.0	14.9	15.8			16.5	3.9	2.6	6.2	10.8	26.9			8.9
6/ Growing Season Precipitation (in.)		n/a	n/a	n/a	n/a	n/a	6.7										
Soil PAW (in.) to SD @ Planting		n/a	n/a	n/a	9.81	7.94	9.1										
Total Plant Available Water (in.)		n/a	n/a	n/a	9.81	n/a	14.5										
Soil NO3 (lbs.) to SD at Planting		n/a	n/a	n/a	197	193	141										
SD (Sampling Depth in Inches)		n/a	n/a	n/a	48	45	48										
Fertilizer Applied	(# N)	100	100	100	100	100	103										
	(# P <sub>2</sub> O <sub>5</sub> )	20	20	20	20	20	20										
	(# K <sub>2</sub> O)	10	10	10	10	10	10										
	(# S)	0	10	10	10	10	6										

Check variety is Vida.

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 Vida protein or saw fly rating 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 protein or saw fly rating of a given entry for years tested, y = average protein or saw fly rating for Vida for the same year and z = 9-Yr average protein or saw fly rating for the check variety Vida.

**TABLE 10. Dryland Fallow Spring Wheat Cultivar Evaluation Nursery Grown Off-Station at the Kammerzell Farm, Chester. Northern Agricultural Research Center. Havre, Montana. 2021. (Exp# 21-9953-SW)**

ID	CULTIVAR or SELECTION	PLNT HT Inches	1/	TEST WT Lbs/Bu	2/	3/	4/
			YIELD Bu/Ac		PROTEIN %	FN Seconds	SAWFLY %
ALUM	WSCIA	22.0	23.9	<b>57.7</b>	16.1	<b>302</b>	<b>11.7</b>
BRENNAN	AGRIPR 10	19.8	23.4	55.9	16.3	299	18.3
CHOTEAU	PI 633974	21.8	22.4	53.8	<b>16.7</b>	251	<b>10.3</b>
CORBIN	BZ 996434	<b>24.5</b>	<b>24.2</b>	55.1	16.2	228	<b>10.3</b>
DAGMAR	PI 690450	<b>23.3</b>	<b>25.7</b>	55.2	16.4	264	<b>4.0</b>
DUCLAIR	PI 660981	22.3	21.7	52.9	16.2	300	<b>3.7</b>
EGAN	PI 671855	22.3	22.2	52.8	<b>17.0</b>	261	41.7
LANNING	PI 676978	21.6	21.9	52.8	15.9	158	25.0
MT SIDNEY	MT 1716	<b>24.4</b>	20.5	54.2	16.1	228	25.0
NS PRESSER CLP	PI 679964	<b>23.7</b>	23.7	54.4	15.4	<b>315</b>	<b>11.7</b>
REEDER	ND 695	21.2	19.5	54.1	16.2	244	25.0
SY INGMAR	AGRIPR141	20.3	18.5	54.6	<b>16.9</b>	170	25.0
SY SOREN	AGRIPR 14	21.8	20.4	54.1	16.6	<b>303</b>	20.0
VIDA	PI 642366	<b>23.1</b>	23.9	54.7	15.7	206	20.0
WB GUNNISON	BZ 92413R	20.4	<b>25.4</b>	55.2	15.6	<b>322</b>	<b>0.0</b>
WB9879CLP	WB9879CLP	19.3	<b>25.5</b>	54.1	16.6	291	<b>5.3</b>
MT 1809	VIDA/MO 09/3-4	<b>23.8</b>	23.1	53.6	<b>16.7</b>	217	21.7
MT 1855	MT1053/MO8/3-4	<b>23.0</b>	<b>24.4</b>	55.1	15.8	247	23.3
MT 1904	VIDA//MT1018//CHOTEAU/YELLOWSTC	<b>22.7</b>	<b>26.0</b>	56.6	16.2	<b>307</b>	<b>3.7</b>
MT 1927	MT1203/MT1234	21.4	23.4	53.4	<b>17.2</b>	218	<b>2.3</b>
MT 1931	MT1316/MT1319	20.7	24.0	51.7	16.1	84	50.0
MT 1934	VIDA/MT1319	21.7	22.6	52.4	15.7	168	<b>8.7</b>
MT 1938	MT1316//MT1018//CHOTEAU/YELLOW	21.4	<b>26.7</b>	53.4	15.8	181	<b>11.7</b>
MT 1939	MT1316//MT1018//CHOTEAU/YELLOW	<b>22.7</b>	<b>25.6</b>	52.7	15.8	180	28.3
MT 1951	MT1316/EGAN	20.2	20.1	50.8	<b>17.1</b>	249	20.0
EXPERIMENTAL MEANS		22.0	23.2	54.1	16.2	239.7	17.1
LSD (0.05)		2.0	2.6	0.9	0.5	20.5	13.1
C.V.%		5.4	6.8	1.1	1.8	5.2	46.7
P-VALUE (Varieties)		<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

1/ Volumetric yields are based on plot weights adjusted to uniform 13 percent grain moisture and 60 lbs/bu as the standard test weight for wheat

2/ Protein values are adjusted to 13 percent grain moisture.

3/ FN is the falling number value reported in seconds adjusted to 14 percent flour moisture.

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 (21-9953-SW)

Seeding Date: April 17, 2021  
 Harvest Date: September 2, 2021  
 Fertility: 100-20-10 side banded  
 System: No Till  
 Herbicide: none  
 Insecticide: none  
 Previous Crop: Chemical Fallow - Spring Wheat  
 Precipitation: n/a

**TABLE 11. Eight-Year Yield and Test Weight Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at the Kammerzell Farm, Chester. Northern Agricultural Research Center. Havre, Montana. 2014-2021. (Exp# 9953-SW)**

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ YIELD (Bushels Per Acre)					TEST WEIGHT (Pounds Per Bushel)					8-YR COMP. AVE. YIELD 5/	8-YR COMP. AVE. TEST WT 5/				
		2017	2018	2019	2020	2021	AVE. for YEARS TESTED 3/	% of CHECK YIELD 4/	2017	2018	2019			2020	2021	AVE. for YEARS TESTED 3/	% of CHECK TEST WT 4/
MT 1621 DAGMAR (+)	4		44.6	69.6	52.9	25.7	48.2	103.2	<b>39.0</b>		57.5	60.5	57.5	55.2	57.7	102.6	<b>56.2</b>
0150042-10 BRENNAN (P+)	8	30.4	41.4	56.0	54.3	23.4	38.0	100.5	<b>38.0</b>	57.5	58.5	61.5	59.9	55.9	57.6	105.1	<b>57.6</b>
PI660981 DUCLAIR (+)(saw fly tol)	8	33.7	37.0	65.8	54.4	21.7	37.9	100.2	<b>37.9</b>	53.6	54.6	58.8	55.3	52.9	54.0	98.4	<b>54.0</b>
PI642366 VIDA (+)	8	33.0	41.8	69.9	51.3	23.9	37.8	100.0	<b>37.8</b>	55.7	55.7	59.2	55.3	54.7	54.8	100.0	<b>54.8</b>
PI671855 EGAN (+)	8	27.2	41.8	63.6	48.3	22.2	36.5	96.5	<b>36.5</b>	54.4	55.3	56.8	54.0	52.8	54.0	98.5	<b>54.0</b>
PI676978 LANNING (+)	7	30.8	40.8	61.3	52.3	21.9	36.5	96.2	<b>36.4</b>	53.9	54.6	58.5	55.8	52.8	53.9	97.8	<b>53.6</b>
BZ996434 CORBIN (P+)	8	35.2	37.5	59.4	48.1	24.2	36.1	95.5	<b>36.1</b>	55.7	55.6	59.5	55.5	55.1	55.2	100.7	<b>55.2</b>
BZ92413R WB GUNNISON (P+)(sawfly tol)	8	35.1	37.3	58.6	52.7	25.4	36.1	95.4	<b>36.1</b>	56.0	55.6	58.9	56.9	55.2	55.7	101.6	<b>55.7</b>
ND 695 REEDER (+)	8	31.6	40.1	64.5	46.6	19.5	35.2	93.1	<b>35.2</b>	55.4	55.7	59.0	56.1	54.1	55.1	100.6	<b>55.1</b>
MT 1716 MT SIDNEY (++)	3			64.3	48.5	20.5	44.4	92.0	<b>34.8</b>			60.3	57.1	54.2	57.2	101.4	<b>55.6</b>
01S0263-28 SY SOREN (P+)	7	28.8	36.4	61.8	51.0	20.4	34.5	90.8	<b>34.4</b>	54.6	54.7	59.6	56.2	54.1	54.7	99.3	<b>54.4</b>
IMICHT-79 WB9879CLP (P+)	8	28.3	36.3	60.3	48.0	25.5	33.9	89.5	<b>33.9</b>	55.7	56.6	58.2	56.1	54.1	55.1	100.4	<b>55.1</b>
PI679964 NS PRESSER CLP (P+)	6	29.1	39.8	62.3	48.0	23.7	35.8	88.5	<b>33.5</b>	54.4	54.8	57.4	54.2	54.4	53.6	97.6	<b>53.5</b>
PI633974 CHOTEAU (+)(saw fly tol)	8	26.4	36.2	55.9	48.3	22.4	32.8	86.6	<b>32.8</b>	55.3	56.3	57.8	55.8	53.8	54.7	99.8	<b>54.7</b>
WA 8166 ALUM (+)	6	24.1	37.2	53.3	49.0	23.9	35.0	86.5	<b>32.7</b>	58.4	55.5	54.7	53.7	57.7	55.2	100.7	<b>55.2</b>
AGRIPR141 SY INGMAR (P+)	5	27.0	32.7	62.6	48.9	18.5	37.9	86.3	<b>32.6</b>	55.1	53.1	59.9	55.8	54.6	55.7	99.2	<b>54.4</b>
CI13596 FORTUNA (saw fly tol)	7	26.1	38.3	53.6	28.2		31.8	79.8	<b>30.2</b>	56.6	57.3	58.5	57.0		56.5	103.0	<b>56.5</b>
LIMAGR143 LCS PRO (P+)	4	26.1	34.1	56.4	39.5		39.0	79.7	<b>30.1</b>	54.0	53.6	56.5	54.9		54.7	96.9	<b>53.2</b>
MEANS (For Entries Listed)		29.2	38.2	61.2	48.2	23.2			<b>34.0</b>	55.5	55.5	58.6	55.8	54.1			<b>52.9</b>
6/ Growing Season Precipitation (in.)		2.8	n/a	n/a	n/a	n/a	5.3										
Soil PAW (in.) to SD @ Planting		n/a	n/a	n/a	n/a	12.7	12.1										
Total Plant Available Water (in.)		n/a	n/a	n/a	n/a	n/a	14.8										
Soil NO3 (lbs.) to SD at Planting		n/a	n/a	n/a	n/a	197	235										
SD (Sampling Depth in Inches)		n/a	n/a	n/a	n/a	48	48										
Fertilizer Applied	(# N)	100	100	100	100	100	103										
	(# P2O5)	20	20	20	20	20	20										
	(# K2O)	10	10	10	10	10	10										
	(# S)	10	10	10	10	10	8										

Check variety is Vida.

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 Vida yield or test weight for the same data years as those in which a given entry was tested.

5/ 8-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 Vida for the same years, and z = 8-Yr average yield or test weight for the check variety Vida.

6/ Seeding to 14 days prior to harvest maturity.

**TABLE 12. Eight-Year Protein and Sawfly Summary on Selected Entries from Dryland Fallow Spring Wheat Variety Nurseries Grown Off-Station at the Kammerzell Farm, Chester. Northern Agricultural Research Center. Havre, Montana. 2014-2021. (Exp# 9953-SW)**

2/ VARIETY or SELECTION	No. of YEARS TESTED 3/	1/ PROTEIN % (Adjusted to 13% grain moisture)					SAWFLY RATING (% of cut and lodged stems)										
		2017	2018	2019	2020	2021	AVE. for YEARS TESTED 3/	% of CHECK PROTEIN 4/	8-YR COMP. AVE. PROTEIN 4/	2017	2018	2019	2020	2021	AVE. for YEARS TESTED 3/	% of CHECK SAWFLY 4/	8-YR COMP. AVE. SAWFLY 5/
BZ92413R WB GUNNISON (P+)(sawfly tol)	8	16.6	16.8	14.5	15.9	15.6	16.1	98.2	<b>16.1</b>	0.3	0.5	0.7	0.7	0.0	1.2	17.7	<b>1.2</b>
MT 1621 DAGMAR (+)	4		16.0	15.3	16.4	16.4	16.0	102.3	<b>16.8</b>		1.0	5.0	2.3	4.0	3.1	41.6	<b>2.9</b>
IMICHT-79 WB9879CLP (P+)	8	17.5	15.7	15.6	16.2	16.6	16.6	101.4	<b>16.6</b>	1.0	1.3	1.0	1.0	5.3	3.0	42.5	<b>3.0</b>
PI633974 CHOTEAU (+)(saw fly tol)	8	17.7	15.8	15.5	16.3	16.7	16.8	102.3	<b>16.8</b>	2.0	0.8	1.0	3.7	10.3	3.6	51.8	<b>3.6</b>
PI660981 DUCLAIR (+)(saw fly tol)	8	17.8	16.6	15.0	16.5	16.2	16.8	102.5	<b>16.8</b>	3.7	1.5	5.0	3.7	3.7	3.6	52.4	<b>3.6</b>
BZ996434 CORBIN (P+)	8	17.8	17.2	15.3	17.4	16.2	17.1	104.1	<b>17.1</b>	0.7	2.3	3.7	2.3	10.3	4.2	60.5	<b>4.2</b>
PI642366 VIDA (+)	8	17.1	16.0	14.8	16.2	15.7	16.4	100.0	<b>16.4</b>	2.3	2.3	3.7	3.7	20.0	7.0	100.0	<b>7.0</b>
WA 8166 ALUM (+)	6	17.3	16.7	16.4	17.1	16.1	16.8	103.6	<b>17.0</b>	3.7	3.8	6.7	3.7	11.7	6.9	110.3	<b>7.7</b>
CI13596 FORTUNA (saw fly tol)	7	17.5	15.6	15.1	16.5		16.5	101.2	<b>16.6</b>	2.3	10.8	5.3	5.3		6.0	118.2	<b>8.2</b>
PI 679964 NS PRESSER CL (P+)	5	17.5	15.8	15.1	18.1	15.4	16.4	102.7	<b>16.8</b>	6.7	0.3	6.7	5.0	11.7	8.1	130.4	<b>9.1</b>
0150042-10 BRENNAN (P+)	8	17.1	15.7	15.4	15.9	16.3	16.4	99.8	<b>16.4</b>	6.7	14.2	25.0	5.3	18.3	9.8	140.4	<b>9.8</b>
PI 671855 EGAN (+)	8	19.2	17.0	16.4	18.2	17.0	18.0	109.7	<b>18.0</b>	13.3	10.8	21.7	3.7	41.7	12.9	184.8	<b>12.9</b>
ND 695 REEDER (+)	8	17.6	16.1	15.4	16.5	16.2	16.8	102.4	<b>16.8</b>	13.3	8.3	23.3	10.0	25.0	12.9	185.6	<b>12.9</b>
01S0263-28 SY SOREN (P+)	7	18.1	16.7	15.4	16.6	16.6	17.2	105.4	<b>17.3</b>	15.0	6.7	15.0	8.7	20.0	10.3	192.9	<b>13.4</b>
MT 1716 MT SIDNEY (++)	3			15.1	16.2	16.1	15.8	101.5	<b>16.6</b>			16.7	11.7	25.0	17.8	195.1	<b>13.6</b>
AGRIPR141 SY INGMAR (P+)	5	17.8	17.5	15.4	16.8	16.9	16.9	105.8	<b>17.4</b>	6.7	5.2	23.3	8.7	25.0	13.8	215.1	<b>15.0</b>
PI 676978 LANNING (+)	7	18.0	15.8	15.6	16.4	15.9	16.8	102.6	<b>16.8</b>	13.3	1.7	31.7	11.7	25.0	14.5	272.3	<b>18.9</b>
LIMAGR143 LCS PRO (P+)	4	17.6	16.4	15.3	16.1		16.3	102.0	<b>16.7</b>	11.7	14.2	31.7	6.7		16.0	534.7	<b>37.2</b>
MEANS (For Entries Listed)		17.6	16.3	15.4	16.6	16.2			<b>16.8</b>	6.8	5.6	12.4	12.6	5.4			<b>9.2</b>
6/ Growing Season Precipitation (in.)		2.8	n/a	n/a	n/a	n/a	5.3										
Soil PAW (in.) to SD @ Planting		n/a	n/a	n/a	n/a	12.7	12.1										
Total Plant Available Water (in.)		n/a	n/a	n/a	n/a	n/a	14.8										
Soil NO3 (lbs.) to SD at Planting		n/a	n/a	n/a	n/a	197	235										
SD (Sampling Depth in Inches)		n/a	n/a	n/a	n/a	48	48										
Fertilizer Applied																	
	(# N)	100	100	100	100	100	103										
	(# P2O5)	20	20	20	20	20	20										
	(# K2O)	10	10	10	10	10	10										
	(# S)	10	10	10	10	10	8										

Check variety is Vida.

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 Vida protein or saw fly for the same data years as those in which a given entry was tested.

5/ 8-Yr Comparable Average = (x/y) \* z where x = average protein or saw fly rating of a given entry for years tested, y = average protein or saw fly rating for Vida for the same years, and z = 8-Yr average protein or saw fly rating for the check variety Vida.

6/ Seeding to 14 days prior to harvest maturity.