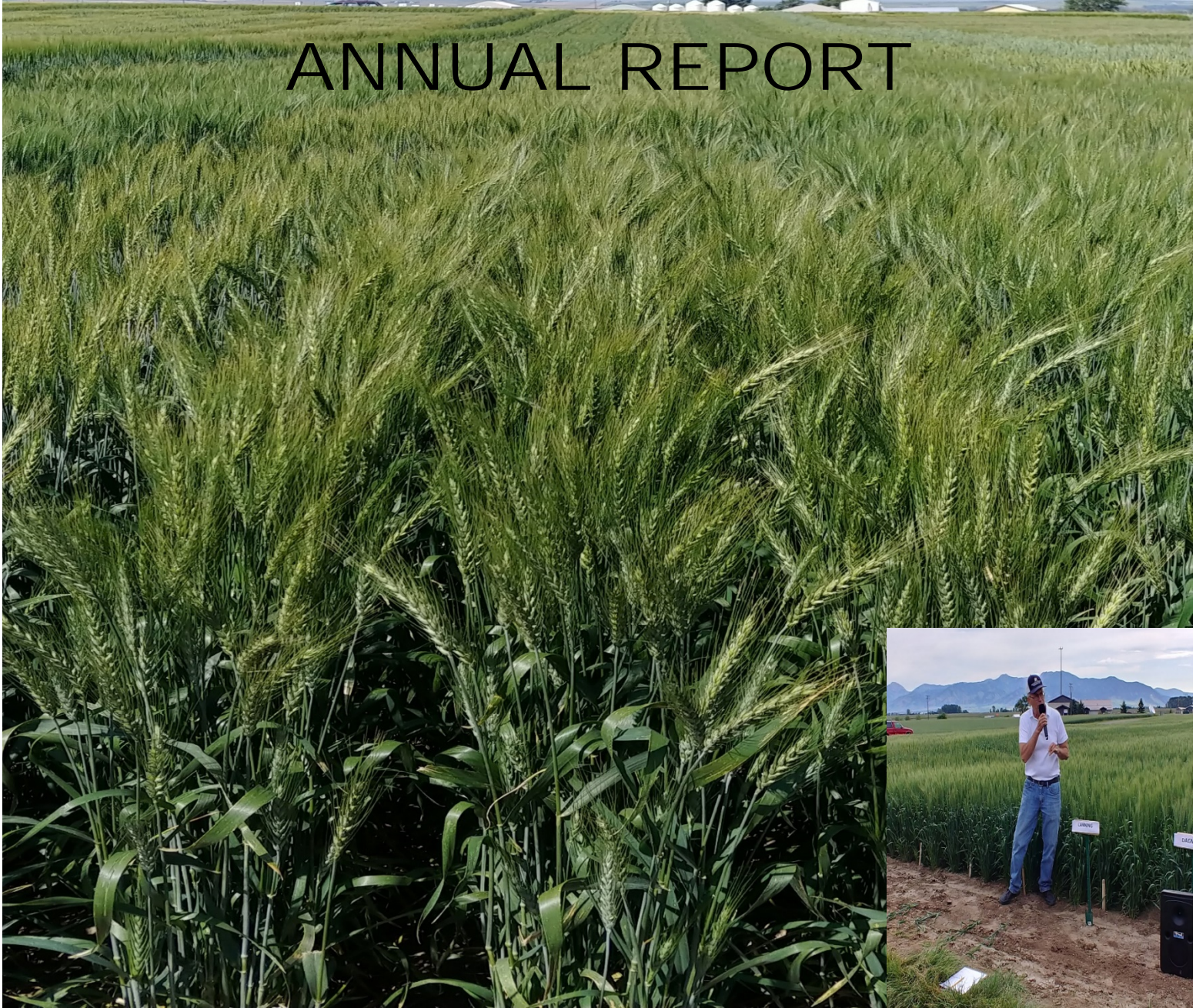


# 2019 MONTANA SPRING WHEAT ANNUAL REPORT



**Montana Agricultural Experiment Station  
Plant Sciences and Plant Pathology Department  
Montana State University**

# 2019 MONTANA SPRING WHEAT ANNUAL REPORT

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DATE: January 22, 2019  
TO: Variety Release and Recommendation Committee Members  
FROM: Mike Giroux, Chair  
RE: 2019 Variety Release Minutes and Committees  
Chair: Mike Giroux, Interim Department Head PSPP  
Secretary: Andy Hogg, Research Associate, PSPP

Present:

Mike Giroux, Andy Hogg, Dave Gettel, Phil Bruckner, Luther Talbert, Jamie Sherman, Liz Elmore, Hwa-young Heo, Nancy Blake, Anton Beckerman, Doug Holen, Heather Unverzagt, Daniel Juliano, Alan Dyer, Sreekala Bajwa, Craig Cook, Darin Oelkers, Andy Burkhardt, Kevin McPhee, Ron Ramsfield, David Weaver, Harvey TeSlaa, Perry Miller, Jason Cook, Robert Hoffman, Joe Jensen, Scott Christensen, Collin Watters, Trevor Schafer, Jessica Williams, Devon Miller, Jordan Skaley.

Called in:

Dale Clark, Ken Kephart, Peggy Lamb, Darrin Boss, Gadi Reddy, John Miller, Jed Eberly, Patrick Carr, Chengci Chen, Todd Hansen, Chris Westergard.

Absent: Deanna Nash, Jessica Torrion, Prashant Jha

**Agenda for 2019 Variety Release Meeting**

Following is the agenda for the 2019 Variety Release meeting held on **Tuesday, January 22, 2019 at 1:00 pm in 108 Plant BioScience Building.**

1. Approval of the 2018 meeting minutes.
2. Discuss and vote on the motions submitted to the Wheat and Barley Crop Committees.

## **2019 Meeting Minutes**

### **1. Approval of the Minutes of the 2018 meeting.**

- Phil Bruckner motioned to approve the 2018 minutes.
- Alan Dyer seconded the motion.
- Motion passed unanimously, 13-0.
- Daniel Juliano from MSU tech transfer gave an update on revenue generation from new cultivar releases. Moving forward, a higher percentage of income generated from new cultivar releases will be reinvested into the breeding programs.

### **2. Wheat Committee**

- **Phil Bruckner – Proposal to release MTS1588 hard red winter wheat as a public protected variety.**
- Phil Bruckner discussed the crossing pedigree and selection method used. The cross involved two solid stem experimental lines and a hollow stem experimental line.
- Phil Bruckner- Testing over multiple years in sawfly nurseries showed MTS1588 had the least cutting of solid stem lines and was more solid than Warhorse.
- Phil Bruckner- Compared to other solid stem lines in sawfly areas, MTS1588 was the highest yielding, with yields statistically comparable to Loma. MTS1588 performed best in Conrad and Havre, which are active sawfly areas. Under sawfly pressure, there was a 10% yield increase compared to Judee.
- Phil Bruckner- MTS1588 has acceptable protein and other quality traits comparable to current varieties.
- Phil Bruckner- MTS1588 has stripe rust resistance at seedling stage and likely the adult stage.
- Perry Miller wondered if the short height is beneficial or detrimental?
- Phil Bruckner thought under high drought stress/low rainfall it could maybe be an issue, but in general, he has been pushing his lines to be shorter.
- Dave Gettel commented that as a grower he thought it was beneficial to have shorter solid stemmed wheat in no till because it's easier to seed into.
- Phil Bruckner motioned to release MTS1588 hard red winter wheat as a public protected variety.
- Doug Holen seconded.
- Motion passed unanimously, 13-0.

- **Phil Bruckner – Proposal to release MT1564 hard red winter wheat as a public protected variety.**
- Phil Bruckner- MT1564 is an early maturing variety which is unique for Montana winter wheats. The cross involved a spring wheat that carries stripe rust resistant alleles YR5 and YR15 which was crossed to Yellowstone and Yellowstone derivatives (~75 % Yellowstone). Bulk selection through F<sub>5</sub>. Winter hardiness was selected for in F<sub>4</sub> and stripe rust resistance was selected for in the F<sub>6</sub> and F<sub>7</sub>. Multi location testing was carried out for 4 years.
- Phil Bruckner mentioned that Jason Cook confirmed that the two stripe rust resistant genes are present in MT1564 using molecular markers.
- Phil Bruckner- Data from NRPN indicated that MT1564 did not carry YR15 using molecular markers. However, stripe rust testing at Washington State by Xianming Chen showed it had resistance to all races at the seedling stage and several races in the adult stage. Field testing showed that MT1564 was highly resistant to stripe rust. MT1564 is moderately resistant to stem rust.
- Alan Dyer made a comment that an early heading variety is useful to help prevent wheat streak mosaic virus. Should help eliminate green bridge.
- Phil Bruckner- In advanced trials MT1564 had a high yield potential, similar to Yellowstone and SY-Wolf.
- Phil Bruckner- MT1564 has similar quality to Decade and Yellowstone in preliminary tests. Compared to the varieties Four-O-Six and Northern, MT1564 has improved mixing tolerance and higher flour yield.
- Jim Berg mentioned it has good mixing tolerance, which is preferred by bakers.
- Darin Oelkers asked if Phil knew why it did not perform well in 2018.
- Phil Bruckner said he did not observe anything last year that was unusual.
- Heather Unverzagt recommended that it have a white seed tolerance written into the PVP to avoid a problem if it is to be grown in Washington state.
- Phil Bruckner motioned to release MT1564 hard red winter wheat as a public protected variety.
- Motion was seconded by David Weaver.
- Motion passed unanimously, 13-0.
- **Phil Bruckner – Proposal to release MTCL1601 Clearfield hard red winter wheat as a licensed protected variety.**
- Phil Bruckner- MTCL1601 came from a cross between an experimental semi-solid hard white line and a Clearfield resistant experimental line. It carries 2 *als* resistance genes.
- Mike Giroux asked if the Clearfield trait will become publicly available soon.

- Daniel Juliano thought perhaps once its patent expires.
- Phil Bruckner- MTCL1601 was selected with herbicide tolerance 2x rate for several years. Currently waiting for approval from BASF confirming that it has acceptable herbicide resistance.
- Phil Bruckner- MTCL1601 has intermediate stem solidness and exhibited some cutting by sawfly similar to Loma and Judee. Lower yielding than other solid stem lines in sawfly areas due to higher cutting.
- Phil Bruckner- MTCL1601 has a better yield potential than Brawl CL Plus but comparable to SY Clearstone 2CL, both which are Clearfield resistant varieties.
- Phil Bruckner- MTCL1601 has adequate quality but lower mixing tolerance and bake water absorption compared to Yellowstone.
- Phil Bruckner- MTCL1601 has good stripe rust resistance and is moderately susceptible to stem rust.
- Phil Bruckner motioned to release MTCL1601 Clearfield hard red winter wheat as a licensed, protected variety.
- Alan Dyer seconded.
- Motion passed unanimously, 13-0.
- **Luther Talbert – Proposal to release MT1621 hard red spring wheat as a public, PVP, title V protected variety.**
- Luther Talbert- Rationale for release was improved protein and quality compared to Vida but have the stay green trait and more solid stems. Mentioned it has been difficult to separate the stay green trait and lower gluten strength. Was selected to have an earlier heading date so it might escape the hottest part of the summer/grain fill.
- Luther Talbert- Over 2 years, 2017-18, it had highest yield, statistically similar to Vida.
- Luther Talbert- MT1621 has increased protein content compared to Vida.
- Luther Talbert- MT1621 has a 3 day earlier heading date than Vida and senesced earlier. This means it has essentially the same grain fill period as Vida.
- Luther Talbert- MT1621 is an intermediate stem solid line. Has some sawfly resistance, not as good as Choteau or Duclair.
- Dave Gettel asked if early heading affects sawfly infestation?
- David Weaver commented that the heading date does not affect sawfly infestation.
- Mike Giroux asked about the increased protein content being site specific.
- Luther Talbert thought not given its performance across statewide yield trials.
- Luther Talbert- MT1621 has a much higher mixing tolerance than Vida and Reeder.

- Jim Berg mentioned the standard mix tolerance across the country is a 3.0 or higher.
- Luther Talbert- MT1621 was found to be moderately resistant to stripe rust, similar to Lanning and Duclair.
- Luther Talbert- MT1621 is susceptible to Fusarium head blight. Data was not consistent across trials.
- Luther Talbert motioned to release MT1621 hard red spring wheat as a public, PVP, Title V protected variety.
- David Weaver seconded.
- Motion passed unanimously, 13-0.

### **3. Barley and Oats Committee**

- **Jamie Sherman – Proposal to release MT124112 spring malt barley as a public protected variety.**
- Jamie Sherman- This line was originally crossed by Tom Blake, parents included LK644, Hockett. The rationale was to replace Hockett which maltsters have an issue with because it is slow to germinate and requires the addition of an enzyme for quicker seed germination.
- Jamie Sherman- Parental material LK644 donated the low protein gene. This should be beneficial to growers as it will help prevent them from having too high of protein.
- Jamie Sherman- MT124112 has similar yield to Hockett but lower protein, about 91% of Hockett. MT124112 has comparable % plumps and test weight to Hockett.
- Jamie Sherman- MT124112 heads about 2 days earlier and matures a little later compared to Hockett.
- Jamie Sherman- MT124112 has lower lodging potential than Metcalfe and Hockett so could be grown under irrigation.
- Jamie Sherman- Under high fertility (nitrogen) MT124112 maintains a lower protein compared to Hockett and a high yield potential.
- Jamie Sherman- MT124112 seeds hydrate faster compared to Hockett which would be advantageous to maltsters. She was not sure how this relates to pre-harvest sprouting.
- Jamie Sherman- MT124112 has a higher malt extract than Hockett and lower beta glucans. The beta glucan content was similar or higher than Metcalfe.
- Jamie Sherman- Fusarium head blight disease severity is similar to Hockett.
- Jamie Sherman motioned to release MT124112 spring malt barley as a public protected variety.
- Alan Dyer seconded.

**MONTANA AGRICULTURAL EXPERIMENT STATION  
SPRING WHEAT BREEDING PROGRAM  
2019**

**PROJECT LEADER: Luther Talbert**

**PROJECT PERSONNEL: Hwa-young Heo, Nancy Blake**

**COOPERATORS:**

**MAES Research Center Faculty**

**Dr. Jessica A Torrion, and Ms. Amanda Shine, NWARC- Creston (Kalispell)**

**Dr. Ken Kephart, and Ms. Valerie Smith, SARC-Huntley**

**Dr. Jed Eberly, Ms. Eva Magnuson, and Dr. Patrick Carr, CARC-Moccasin**

**Dr. Darrin Boss and Ms. Julie Orcutt, WTARC-Conrad**

**Ms. Peggy Lamb, NARC-Havre**

**Dr. Chengci Chen, and Ms. Calla Kowatch, EARC-Sidney**

**Plant Science and Plant Pathology Faculty**

**Ms. Deanna Nash**

**Dr. Jack Martin**

**Mr. Doug Holen**

**The lower overall temperature (-1.2 degrees during May-August) contributed to late harvest.**

**Average yield for the 2019 Montana advanced spring wheat nursery ranged from 38.3 bu/ac at Kalispell up to 105.3 bu/ac at Sidney under irrigation with a statewide average of 66.5 bu/ac. Across locations, MT1809 and MT1868 were the highest yielder at 72.0 bu/ac with several lines yielding the same statistically.**

**Test weight ranged from 54.1 lb/bu at Havre up to 66.4 lb/bu at the Sidney dry nursery with a statewide average of 60.8 lb/bu. Across locations, WB9719 had the highest value at 64.1 lb/bu.**

**Grain protein ranged from 11.8% at the Moccasin up to 18.1% at Havre with a statewide average of 14.7%. Across locations, WB9668 and Egan had the most consistently high protein content.**

## **2019 SPRING WHEAT NURSERIES**

### **Advanced Spring Wheat Nursery (AYT) - 64 entries - 3 reps**

- 1. Bozeman, rain-fed**
- 2. Huntley, rain-fed**
- 3. Moccasin, rain-fed**
- 4. Conrad, rain-fed**
- 5. Havre, rain-fed**
- 6. Sidney, rain-fed**
- 7. Sidney, irrigated**

### **Preliminary Spring Wheat Nursery (PYT) : 81 entries - 3 reps**

- 1. Bozeman, rain-fed**
- 2. Moccasin, rain-fed**
- 3. Havre, rain-fed**
- 4. Sidney, rain-fed**

### **Hard Red Spring Wheat Nursery : 39 entries, 3 reps**

### **Western Regional Hard Spring Wheat Nursery : 13 entries, 3 reps**

### **Western Regional Soft Spring Wheat Nursery : 7 entries, 3 reps**

### **Uniform Regional Durum Nursery : 32 entries, 3 reps**

### **Offstation Spring Wheat Nurseries : 20 entries, 3reps**

### **F6 Hard Red Spring Wheat Nursery : 409 entries, augmented design**

## **EARLY GENERATION NURSERIES**

**F1 - 100 combinations were grown, individual plants were harvested and will be grown for two generations using single seed descent and bulk advancement in the Plant Growth Center. Crosses in this group were to increase yield and protein content while improving sawfly resistance, as well as resistance to fusarium head blight and other diseases and insects.**

**F4 – Approximately 12,000 space planted head rows were grown and approximately 1,400 plants were selected and harvested. Lines in this nursery were derived from crosses also made for insect and disease resistance and to develop more hard white types.**

**F5 – Approximately 2,000 lines were grown and 500 lines were selected and harvested.**

Summary of climatic data by months for the 2018-2019 crop year (September to August) and averages for the period 1958-2018 at the Post Agronomy Research Farm in Bozeman, Montana.

Month Year	Sep 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Year
<b>Precipitation (inches)</b>													<b><u>Total</u></b>
Current Year	0.58	1.51	0.98	0.37	0.60	1.31	0.59	3.32	1.72	2.06	2.69	0.74	<b>16.47</b>
Average (1958-2019)	1.46	1.36	0.93	0.60	0.52	0.52	1.02	1.69	2.62	2.68	1.29	1.22	15.92
difference	-0.88	0.15	0.05	-0.23	0.08	0.79	-0.43	1.63	-0.90	-0.62	1.40	-0.48	0.55
<b>Mean Temperature (°F)</b>													<b><u>Average</u></b>
Current Year	55.7	43.8	31.6	24.8	25.5	11.4	22.1	43.0	49.1	59.1	64.8	65.8	<b>41.4</b>
Average (1958-2019)	55.8	45.4	31.7	23.5	22.8	26.9	34.0	42.4	51.3	58.9	65.9	65.0	43.6
difference	-0.1	-1.6	-0.1	1.3	2.7	-15.5	-11.9	0.6	-2.2	0.2	-1.1	0.8	-2.2

Last killing frost in spring\*

2019 \_\_\_\_\_ May 19 (32°F)  
 Ave. 1958-2019 \_\_\_\_\_ May 31

First killing frost in fall\*

2019 \_\_\_\_\_ September 28 (32°F)  
 Ave. 1958-2019 \_\_\_\_\_ September 13

Frost free period

2019 \_\_\_\_\_ 132 days  
 Ave. 1958-2018 \_\_\_\_\_ 106 days

Maximum summer temperature \_\_\_\_\_ 90°F on July 24, 2019  
 Minimum winter temperature \_\_\_\_\_ -26°F on March 4, 2019

\*In this summary 32° is considered a killing frost.

Summary of climatic data by months for the 2018-2019 crop year (September to August) and averages for the period 1916-2019 at the Northern Agricultural Research Center. Havre, Montana.

Month Year	Sep 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Crop Year
<b>Precipitation (inches)</b>													<b>Total</b>
Current Year	2.08	0.29	0.35	0.02	0.40	0.86	0.23	0.92	1.53	3.24	0.64	0.73	11.29
Average (1916-2019)	1.17	0.69	0.44	0.45	0.43	0.35	0.54	1.00	1.84	2.55	1.43	1.18	12.07
Difference	0.91	-0.40	-0.09	-0.43	-0.03	0.51	-0.31	-0.08	-0.31	0.69	-0.79	-0.45	-0.78
<b>Mean Temperature (°F)</b>													<b>Average</b>
Current Year	54.1	42.8	31.9	27.0	24.1	-6.1	21.0	44.6	49.4	61.4	67.4	67.3	40.4
Average (1916-2019)	56.3	45.6	30.2	19.6	15.7	19.7	30.0	43.6	53.9	61.8	69.3	67.3	42.8
Difference	-2.2	-2.8	1.7	7.4	8.4	-25.8	-9.0	1.0	-4.5	-0.4	-1.9	0.0	-2.4

Last killing frost in spring\*

2019 \_\_\_\_\_ May 20th (29.3°)  
 Ave. 1916-2019 \_\_\_\_\_ May 14th

First killing frost in fall\*

2019 \_\_\_\_\_ September 28th (29.0°)  
 Ave. 1916-2019 \_\_\_\_\_ September 20th

Frost free period

2019 \_\_\_\_\_ 131 days  
 Ave. 1916-2019 \_\_\_\_\_ 129 days

Growing degree days (base 50)

May 20-Sept. 28, 2019 \_\_\_\_\_ 1851.6  
 May 1-Sept. 30, 2019 \_\_\_\_\_ 1955.9  
 Ave. 1951-2019 (May 1-Sept. 30) \_\_\_\_\_ 2177.1

Maximum summer temperature \_\_\_\_\_ 98.1° F on August 3, 2019

Minimum winter temperature \_\_\_\_\_ -38.4° F on February 7, 2019

\*In this summary 32° is considered a killing frost.

Summary of climatic data by months for the 2018-2019 crop year (October thru September) and averages for the period 1949-2019 at the Eastern Agricultural Research Center, Sidney, Montana, irrigated and dryland site.

Month Year	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	June 2019	July 2019	Aug 2019	Sept 2019	Total
<b>Precipitation (inches)</b>													<b>Total</b>
<b>Current Year-Irrigated</b>	0.41	1.06	0.41	0.38	0.87	0.00	1.12	1.78	2.39	3.28	1.52	9.28	<b>22.50</b>
<b>Avg. 1949 to 2019</b>	0.92	0.49	0.44	0.40	0.36	0.54	1.15	2.16	2.73	2.07	1.46	1.39	<b>14.11</b>
<b>Current Year-Dryland</b>	0.45	1.06	0.41	0.38	0.87	0.00	1.26	1.56	2.98	2.50	1.85	8.19	<b>21.51</b>
<b>Temperature (F °)</b>													<b>Average</b>
<b>Ave. Maximum Temp</b>	54.5	34.9	33.9	28.0	6.0	35.5	57.1	62.9	76.8	81.6	80.8	69.6	<b>51.8</b>
<b>Ave. Minimum Temp</b>	28.8	19.7	15.9	10.3	-14.0	15.6	31.9	37.7	49.9	54.9	53.3	46.8	<b>29.2</b>
<b>Current Year Mean Temp</b>	41.7	27.3	24.9	19.2	- 4.0	25.6	44.5	50.3	63.4	68.3	67.1	58.2	<b>40.5</b>
<b>Avg. 1949 to 2019</b>	45.9	30.2	18.1	13.2	19.3	30.5	44.5	56.0	64.6	70.2	68.7	58.0	<b>43.3</b>

**Last killing frost in spring \***

2019 ..... May 17, 2019 (31.8°F)  
 Avg. 1949 to 2019 ..... May 15

**First killing frost in fall \***

2019 ..... October 2, 2019 (31.9°F)  
 Avg. 1949 to 2019 ..... September 21

**Frost-free period**

2019 ..... 138  
 Avg. 1949 to 2019 ..... 129

**Growing degree days (base 50) \*\***

May 1 - First killing frost ..... 2352.7  
 Avg. 1949 to 2019 ..... 2250.6

**Maximum summer temperature** ..... August 3, 2019 (96.2°F)

**Minimum winter temperature** ..... February 8, 2019 (-42.4°F)

\* 32° is considered a killing frost.

\*\* In calculating growing degree days, 29° is considered a killing frost.

**Summary of climatic data for the 2019 crop year: September, 2018 – August 31, 2019**  
**Northwestern Agricultural Research Center, Creston, Montana**

<b>Month Year</b>	<b>SEPT 2018</b>	<b>OCT 2018</b>	<b>NOV. 2018</b>	<b>DEC. 2018</b>	<b>JAN. 2019</b>	<b>FEB. 2019</b>	<b>MAR. 2019</b>	<b>APR. 2019</b>	<b>MAY 2019</b>	<b>JUNE 2019</b>	<b>JULY 2019</b>	<b>AUG. 2019</b>	
<b><u>Precipitation (in.)</u></b>													<b><u>Total</u></b>
Current Year	0.59	1.17	1.52	0.46	1.37	1.79	0.98	1.19	1.63	1.96	1.12	0.65	14.43
Average (1980-2019)	1.54	1.42	1.59	1.56	1.38	1.24	1.31	1.75	2.30	3.27	1.47	1.04	19.84
Difference	-0.95	-0.25	-0.07	-1.10	-0.01	0.55	-0.33	-0.56	-0.67	-1.31	-0.35	-0.39	-5.41
<b><u>Mean Temperature (°F)</u></b>													<b><u>Average</u></b>
Current Year	55.5	44.7	37.3	28.95	25.6	11.3	25.5	43.9	53.5	59.4	63.4	64.8	42.8
Average (1980-2019)	53.9	42.5	32.7	24.4	24.6	26.7	34.9	43.1	51.6	57.8	64.5	63.6	43.3
Difference	1.6	2.2	4.6	4.6	1.0	-15.4	-9.4	0.8	1.9	1.6	-1.1	1.2	-0.5

**Last killing frost in spring\***

Spring, 2019: May 8

Average (1980-2018): May 19 (31°F)

**First killing frost in fall\***

Fall, 2019: September 27 (32°F)

Average (1980-2018): September 19

**Frost-free period**

2019: 141 days

Average (1980-2019): 124 days

**Maximum summer temperature:** 93°F (August 22<sup>nd</sup>, 2019)

**Minimum winter temperature:** -22°F (March 3<sup>rd</sup>, 2019)

**Growing degree days (base 50)**

May 1<sup>st</sup> – September 30<sup>th</sup>, 2019: 1795 GDD

Average (2016-2018): 1849.2 GDD

\*32 °F is considered a killing frost

**Summary of climatic data by months for the 2018-2019 crop year (September to August) and averages for the periods 1910-2018 (precipitation) and 1912-2018 (temperature) at the Central Agricultural Research Station, Moccasin, MT.**

Year	2018	2018	2018	2018	2019	2019	2019	2019	2019	2019	2019	2019	2019
<b>Precipitation (inches)</b>													<b>Total</b>
Average (1910 - 2019)	1.44	0.92	0.57	0.54	0.54	0.46	0.71	1.22	2.64	3.07	1.65	1.59	15.35
Current Year	1.55	1.15	1.22	0.16	0.41	1.24	0.6	1.87	3.71	2.71	1.91	1.92	18.45
Difference	0.11	0.23	0.65	-0.38	-0.13	0.78	-0.11	0.65	1.07	-0.36	0.26	0.33	3.10
<b>Temperature (°F)</b>													<b>Average</b>
Average (1910 - 2019)	54.9	44.9	32.9	24.9	21.9	24.5	30.6	40.8	50.1	57.9	66.0	65.0	42.9
Current Year	55.1	43.0	33.2	29.6	28.7	3.3	25.0	41.7	46.5	57.7	64.2	64.3	41.0
Difference	0.2	-1.9	0.3	4.7	6.8	-21.2	-5.6	0.9	-3.6	-0.2	-1.8	-0.7	-1.8

**Maximum summer temperature**                      **92°F on July 23 and August 3**  
**Minimum winter temperature**                      **-33°F on March 2**

Summary of climatic data by months for the 2018-2019 cropping year (September-August) compared to averages for the period of record from 1911 to 2018 at the Southern Agricultural Research Center near Huntley, Montana.

	2018				2019								Year
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
<u>Precipitation (inches)</u>													<u>Total</u>
Current Year (2018-2019)	0.36	0.66	0.48	0.40	0.61	1.44	0.28	1.53	3.48	2.32	1.71	1.70	14.97
Average (1911-2018)	1.31	1.10	0.63	0.61	0.55	0.47	0.80	1.38	2.22	2.32	1.13	0.97	13.49
Difference	-0.95	-0.44	-0.15	-0.21	0.06	0.97	-0.52	0.15	1.26	0.00	0.58	0.73	1.48
<u>Mean Temperature (°F)</u>													<u>Average</u>
Current Year (2018-2019)	57.3	44.0	34.7	28.9	25.4	6.3	24.8	46.2	50.4	63.0	69.6	70.6	43.43
Average (1911-2018)	58.2	46.9	33.7	23.8	21.1	25.8	34.4	45.5	55.0	63.4	70.9	68.8	45.63
Difference	-0.9	-2.9	1.0	5.1	4.3	-19.5	-9.6	0.7	-4.6	-0.4	-1.3	1.8	-2.20

Last Killing Frost in Spring<sup>1/</sup> 2019 ..... 32 °F on May 10  
Average (1911-2018) ..... May 17

First Killing Frost in the Fall<sup>1/</sup> 2019 ..... 30°F on September 21  
Average (1911-2018) ..... September 19

Frost-free Period 2019 ..... 134 days  
Average (1911-2018) ..... 125 days

Growing Degree Days (Base 50)<sup>2/</sup> 2019 ..... 2,079 GDD (°F)  
Average (1911-2018) ..... 2,220 GDD (°F)

Growing Degree Days (Base Corn)<sup>2/</sup> 2019 ..... 2,508 GDD (°F)  
Average (1911-2018) ..... 2,760 GDD (°F)

Maximum Summer Temperature 97°F on August 3, 4, and 5, 2019

Minimum Winter Temperature -33 °F on March 3, 2019

1/ 32 °F is considered a killing frost. Average last and first killing frost dates are calculated on a 50% probability of a minimum temperature occurring below the threshold temperature of 32.5 °F based on observations from 1911 to 2018.

2/ Growing degree days calculated from temperatures observed during the frost free period from May 10th through September 21st, 2019, and for the same 145-day interval from the period of record of 1911 to 2018.

Summary of climatic data by months for the 2018-2019 crop year (September to August) and averages for the period 1987-2019 at the Western Triangle Agricultural Research Center near Conrad, Montana.

Month Year	Sep 2018	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Year
<b>Precipitation (inches)</b>													<b>Total</b>
Current Year	1.23	0.44	0.15	0.14	0.24	0.12	0.11	2.12	2.50	0.81	0.56	0.89	<b>9.31</b>
33-year Average	1.23	0.67	0.31	0.22	0.29	0.23	0.41	1.08	1.86	2.81	1.34	1.21	11.65
difference	0.00	-0.23	-0.16	-0.08	-0.05	-0.11	-0.30	1.04	0.64	-2.00	-0.78	-0.32	-2.34
<b>Mean Temperature (°F)</b>													<b>Average</b>
Current Year	51.2	40.8	31.6	27.6	26.0	-1.6	23.7	41.1	47.0	58.6	64.2	64.0	<b>42.4</b>
33-year Average	56.6	44.5	32.0	23.6	23.1	23.4	32.4	42.5	51.6	59.4	66.8	65.8	43.7
difference	-5.4	-3.7	-0.4	4.0	2.9	-25.0	-8.7	-1.4	-4.6	-0.8	-2.6	-1.8	-1.3

Last killing frost in spring\*

2019 \_\_\_\_\_ 20-May  
 Ave. 1986-2019 \_\_\_\_\_ May 17

First killing frost in fall\*<sup>1/</sup>

2019 \_\_\_\_\_ September 29  
 Ave. 1986-2019 \_\_\_\_\_ September 25

Frost free period<sup>1/</sup>

2019 \_\_\_\_\_ 132 days  
 Ave. 1990-2019 \_\_\_\_\_ 136 days

Maximum summer temperature \_\_\_\_\_ 93°F on Aug 4, 2019

Minimum winter temperature \_\_\_\_\_ -28°F on March 4, 2019

\*In this summary 32° is considered a killing frost.

**NURSERY MANAGEMENT INFORMATION FOR THE 2019 ADVANCED SPRING WHEAT NURSERY**

DISTRICT	Kalispell dryland 1	Bozeman dryland 2	Moccasin dryland 4	Conrad dryland 5	Havre dryland 5	Sidney dryland 6	Sidney irrigated 6
<b>Location:</b>							
Latitude °N	48° 10'	45° 41'	47° 03'	48° 18.4'	48° 29'	47° 40'	47° 40'
Longitude °W	114° 15'	111° 00'	109° 57'	111° 55.5'	109° 48'	104° 08'	104° 08'
Elevation (ft)	2890	4772	4300	3700	2690	2200	1950
<b>Precipitation:</b>							
2018-19 annual moisture (in.) <sup>1</sup>	14.43	16.47	18.45	9.31	11.29	21.51	22.50
Avg. annual moisture (in.) <sup>1</sup>	19.84	15.92	15.35	11.65	12.07	14.11	14.11
2019 Moisture (Apr.-July.)	5.90	9.79	10.2	5.99	6.33	8.30	8.57
Avg. moisture (Apr.-July)	8.79	8.28	8.58	7.09	6.82	8.11	8.11
Irrigation water applied (in.)	rainfed	rainfed	rainfed	rainfed	rainfed	rainfed	1.8
<b>Previous Crop:</b>							
2017	Alfalfa	Oats	Fallow	S. wheat	Chem fallow	Cereal	Cereal
2018	Alfalfa	Fallow	Pea/lentil cover crop	Chem fallow	Spring Wheat	Fallow	Sugar beets
2019	Alfalfa	Fallow	Pea/lentil cover crop	Chem fallow	Chem fallow	Cereal	Cereal
<b>Soil Type:</b>							
Series	Flathead fine sandy loam	Amsterdam	Judith	Scobey	Joplin	Williams	Savage
Texture <sup>2</sup>	SiL	SiL	CL	CL	CL	CL	SiC
<b>Fertilization:</b>							
Available N (lb/ac)	56	62	25	15.9	84	39	25
Applied N-P-K (actual lb/ac)	84/45/100	452# 46-0-0	50# 20-30-20-10 120#/ac ESN (44:0:0)	200-22.5-20	100-20-10-10	60-20-0	100-30-0
Planting date	4/22/19	5/08/19	4/19/19	4/30/19	4/18/19	4/18/19	5/06/19
Harvest date	9/3/19	9/15/19	9/06/19	9/17/19	8/15/19	8/19/19	8/27/19

<sup>1</sup> Moisture : September – August,

<sup>2</sup> C= clay, L= loam, Sa=sand, Si=silt or silty, F=fine and VF=veryfine

**2016-2019 OVERALL AVERAGE OF GRAIN YIELD, TEST WEIGHT AND PROTEIN CONTENT  
FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA**

LINE	VARIETY / PEDIGREE	YIELD				TEST WEIGHT				PROTEIN			
		(BU/AC)				(LB/BU)				(%)			
		2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019
AGRIPR 141	SY INGMAR	66.7	65.3	62.1	61.7	61.6	62.1	61.4	<u>61.5</u>	15.2	15.3	15.1	14.9
AGRIPR 151	SY Valda	<u>68.5</u>	<u>71.1</u>	<u>64.8</u>	<u>65.3</u>	61.3	61.5	60.9	<u>61.2</u>	14.4	14.4	14.4	14.1
AGRIPR 161	SY Rockford	<u>69.7</u>	<u>69.8</u>	<u>65.9</u>	<u>64.3</u>	59.7	60.3	59.9	59.9	14.4	14.4	14.4	14.1
BZ 92413R	WB GUNNISON	62.5	64.0	59.9	60.0	61.6	61.8	61.0	<u>61.2</u>	14.0	14.0	13.9	13.7
BZ 996434	CORBIN	62.9	63.1	60.5	60.3	61.2	61.5	61.0	<u>61.3</u>	14.8	14.8	14.7	14.4
CI 10003	THATCHER	51.0	53.1	50.6	49.8	58.3	59.1	58.3	58.8	15.1	15.1	15.2	14.9
CI 13596	FORTUNA	56.3	55.9	54.7	54.3	60.3	60.8	60.5	60.8	14.5	14.6	14.5	14.5
ND 695	REEDER	64.1	66.4	63.6	<u>63.9</u>	61.4	61.3	60.7	<u>61.1</u>	14.8	14.9	14.9	14.7
PI 574642	MCNEAL	63.8	64.9	60.9	60.4	60.4	60.5	59.5	59.8	14.4	14.7	14.6	14.5
PI 633974	CHOTEAU	63.4	64.4	59.9	59.7	60.2	60.8	60.2	60.4	14.8	14.9	14.8	14.6
PI 642366	VIDA	<u>69.8</u>	<u>70.7</u>	<u>67.4</u>	<u>66.7</u>	60.7	60.9	60.3	60.4	14.1	14.0	14.0	14.0
PI 660981	DUCLAIR	<u>67.5</u>	<u>68.5</u>	63.5	63.3	60.3	60.9	59.9	60.1	14.8	14.6	14.5	14.3
PI 671855	EGAN	61.4	61.9	59.0	59.5	59.8	60.0	59.2	59.5	<u>15.9</u>	<u>16.2</u>	<u>16.1</u>	<u>15.9</u>
PI 676978	LANNING	<u>67.2</u>	<u>68.0</u>	<u>64.2</u>	63.2	61.1	61.2	60.4	60.6	15.3	15.2	15.1	14.8
PI 679964	NS PRESSER CLP	<u>69.3</u>	<u>70.6</u>	<u>66.7</u>	<u>65.3</u>	60.0	59.8	59.2	59.4	14.2	14.2	14.2	14.0
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	65.4	65.3	61.9	61.0	60.4	61.0	60.5	60.7	14.9	15.0	14.9	14.6
WSCIA	ALUM	64.5	66.3	62.9	62.8	61.2	61.6	61.0	<u>61.3</u>	14.4	14.4	14.4	14.1
LIMAGR 171	LCS REBEL(LNR 13-0594)	66.5	<u>67.8</u>	<u>64.5</u>		62.3	62.5	62.0		14.9	14.9	14.9	
PI 690450	DAGMAR	<u>68.7</u>	<u>70.2</u>	<u>67.7</u>		61.3	61.6	61.2		14.8	14.9	14.8	
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	65.4	66.5	63.0		59.4	60.0	59.3		15.6	15.5	15.4	
WB 171	WB 9590	<u>67.0</u>	<u>67.0</u>	63.0		61.2	61.6	61.2		15.1	15.1	15.0	
WB 173	WB 9719	<u>69.5</u>	<u>69.2</u>	<u>66.3</u>		<u>64.1</u>	<u>63.9</u>	<u>63.1</u>		14.1	14.3	14.3	
MT 1716	MT1274/RB07	65.7	<u>70.0</u>			61.2	61.9			14.7	14.6		
MT 1736	12F5 2124/12SR 37	66.1	<u>68.0</u>			58.7	59.5			14.6	14.7		
MT 1742	MT1274/12F5 827	66.0	<u>67.7</u>			60.9	61.4			14.5	14.4		
MT 1743	MT1274/12F5 827	<u>67.8</u>	<u>70.0</u>			59.5	59.8			14.1	14.2		
MT 1748	12F5 2124/IDO868	<u>67.6</u>	<u>68.5</u>			59.4	59.5			15.1	15.2		
MT 1750	12SR93/12F5 1215	<u>69.8</u>	<u>69.8</u>			61.7	62.2			14.3	14.6		
MT 1756	MT1253/12F5 1215	<u>68.3</u>	<u>68.0</u>			59.4	59.7			14.3	14.5		
MT 1767	12SR225/12F5 827	<u>69.9</u>	<u>69.6</u>			59.4	59.9			14.7	14.8		
MT 1775	12F5 827/12F5 2124	<u>68.8</u>	<u>70.3</u>			60.0	60.3			14.7	14.6		
SYN 181	10S0059-28 (SY McCloud)	63.0	63.3			62.3	62.9			15.6	15.6		
SYN 182	09S0306-24 SS (SY Longmire)	<u>67.8</u>	<u>68.2</u>			62.2	62.1			14.8	14.9		
SYN 183	10S0176-18 CL (SY 611 CL2)	66.3	66.4			62.8	62.8			14.6	14.8		
LIMAGR 191	LNR 1156	66.0				61.2				14.4			

**2016-2019 OVERALL AVERAGE OF GRAIN YIELD, TEST WEIGHT AND PROTEIN CONTENT  
FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA (CONTINUED)**

LINE	VARIETY / PEDIGREE	YIELD				TEST WEIGHT				PROTEIN			
		(BU/AC)				(LB/BU)				(%)			
		2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019
LIMAGR 192	LNR 1751	<u>69.9</u>				61.1				14.7			
MT 1807	VIDA/MO8/3-4	<u>68.9</u>				60.6				14.5			
MT 1809	VIDA/MO 09/3-4	<u>72.0</u>				60.1				14.8			
MT 1811	MT1142/MTHW1150	63.2				61.1				14.4			
MT 1815	MT1206/MT1203	<u>69.7</u>				60.6				14.7			
MT 1818	VIDA/ULEN	<u>67.8</u>				60.8				15.4			
MT 1819	VIDA/ULEN	64.3				60.7				15.0			
MT 1821	VIDA/H0800103L	63.7				62.3				15.0			
MT 1824	MT1206/MT1273	<u>68.1</u>				60.0				14.6			
MT 1826	MT1142/MT1203	66.7				59.2				15.2			
MT 1837	VIDA/MT1219	60.5				60.6				15.1			
MT 1838	MT1206/MT172	65.3				59.6				14.3			
MT 1840	VIDA/LIMAGR1	64.6				62.6				14.0			
MT 1846	MT1053/SD4265	<u>66.9</u>				61.4				15.3			
MT 1853	MT1053/MT1273	<u>68.4</u>				62.0				14.4			
MT 1855	MT1053/MO8/3-4	<u>71.5</u>				61.0				14.5			
MT 1856	MT1007/MT1203	65.9				60.4				15.3			
MT 1857	MT1142/MT1273	<u>70.7</u>				61.6				14.7			
MT 1861	MT1142/MT1264	66.7				62.2				14.9			
MT 1862	MT1142/MT1264	<u>68.2</u>				60.6				14.5			
MT 1863	MT1007/MT1273	66.4				60.7				14.9			
MT 1865	VidaXConan(BC3F2)a2.1.3.6	<u>67.1</u>				59.9				14.4			
MT 1866	VidaXConan(BC3F2)a4.6.8.3	<u>71.0</u>				61.2				14.3			
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	<u>67.0</u>				61.0				15.0			
MT 1868	MT1053/LIMAGR1	<u>72.0</u>				60.3				13.6			
MT 1870	VIDA/H0800103L	66.1				61.1				14.2			
MT 1871	MT1007/TRVERSE	<u>68.9</u>				60.9				14.3			
MT 1872	MT1007/MO 09/3-4	<u>70.3</u>				60.5				14.4			
WB 143	WB 9668	60.0				61.1				16.3			
	AVERAGE	66.5	66.7	62.4	61.2	60.8	61.1	60.5	60.5	14.7	14.8	14.7	14.5
	C.V.	7.4	6.7	5.4	5.3	1.1	1.0	0.9	0.8	3.0	2.4	2.1	2.0
	F-VALUE(LINE)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	LSD(0.05)	5.2	4.4	3.6	3.2	0.7	0.6	0.6	0.5	0.5	0.3	0.3	0.3

1) Underlined : highest value, Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2) Kalispell's 2018 data was excluded, 3) Huntley's 2019 data was excluded due to hail damage

2016-2019 ADVANCED SPRING WHEAT NURSERY, KALISPELL (DRY) : YIELD, TEST WEIGHT AND PROTEIN

LINE	VARIETY / PEDIGREE	YIELD (BU/AC)			TEST WEIGHT (LB/BU)			PROTEIN (%)		
		2019	2017 <sup>1)</sup> , 2019	2016, 2017, 2019	2019	2017 <sup>1)</sup> , 2019	2016, 2017, 2019	2019	2017 <sup>1)</sup> , 2019	2016, 2017, 2019
AGRIPR 141	SY INGMAR	45.8	50.8	59.2	62.0	61.1	61.3	16.5	15.9	16.0
AGRIPR 151	SY Valda	<u>54.0</u>	51.8	67.2	60.5	59.5	<u>60.3</u>	14.1	14.2	14.1
AGRIPR 161	SY Rockford	44.1	51.2	57.6	59.0	58.8	59.0	15.3	15.1	14.8
BZ 92413R	WB GUNNISON	45.2	49.7	65.3	61.6	60.3	<u>60.6</u>	14.2	14.0	14.0
BZ 996434	CORBIN	43.5	49.8	60.1	61.1	60.4	<u>60.9</u>	14.3	14.6	14.8
CI 10003	THATCHER	43.9	46.4	56.1	60.1	58.7	59.4	14.6	15.0	15.0
CI 13596	FORTUNA	38.3	45.4	60.1	60.0	59.8	<u>60.3</u>	15.0	14.8	15.1
ND 695	REEDER	46.7	50.4	65.8	61.5	59.7	<u>60.4</u>	14.6	15.1	15.1
PI 574642	MCNEAL	49.9	52.7	64.0	60.5	58.8	59.3	14.8	14.9	15.2
PI 633974	CHOTEAU	38.8	44.9	55.9	59.8	59.1	59.6	15.2	15.1	15.1
PI 642366	VIDA	49.0	<u>55.0</u>	68.7	60.5	59.3	59.8	14.2	14.3	14.6
PI 660981	DUCLAIR	52.2	<u>54.1</u>	66.3	60.3	59.1	59.5	14.7	14.3	14.5
PI 671855	EGAN	42.9	47.8	65.5	59.9	57.9	58.4	<u>17.0</u>	<u>16.7</u>	<u>16.4</u>
PI 676978	LANNING	46.1	50.8	60.0	60.9	58.6	59.2	15.5	15.5	15.4
PI 679964	NS PRESSER CLP	<u>59.6</u>	<u>60.5</u>	<u>71.5</u>	60.7	59.0	59.6	13.6	14.2	14.3
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	42.9	48.1	56.9	59.8	59.4	59.5	15.4	15.3	15.3
WSCIA	ALUM	50.1	51.1	60.5	62.1	60.5	<u>60.7</u>	14.7	14.8	14.4
LIMAGR 171	LCS REBEL(LNR 13-0594)	<u>56.4</u>	<u>58.4</u>		62.7	<u>61.4</u>		15.0	14.9	
PI 690450	DAGMAR	50.1	<u>56.0</u>		60.8	59.9		14.9	14.9	
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	46.9	50.2		59.2	58.2		16.0	15.6	
WB 171	WB 9590	44.4	51.2		60.3	59.4		15.6	15.4	
WB 173	WB 9719	38.8	47.3		<u>63.6</u>	<u>62.3</u>		15.3	15.0	
LIMAGR 191	LNR 1156	48.4			60.4			14.3		
LIMAGR 192	LNR 1751	<u>58.3</u>			61.4			14.6		
MT 1716	MT1274/RB07	47.0			60.0			15.1		
MT 1736	12F5 2124/12SR 37	52.4			58.0			14.9		
MT 1742	MT1274/12F5 827	47.7			60.2			14.5		
MT 1743	MT1274/12F5 827	51.2			58.6			14.3		
MT 1748	12F5 2124/IDO868	48.2			59.3			14.9		
MT 1750	12SR93/12F5 1215	49.9			61.1			15.0		
MT 1756	MT1253/12F5 1215	46.6			59.2			14.8		
MT 1767	12SR225/12F5 827	46.5			59.2			14.5		
MT 1775	12F5 827/12F5 2124	<u>54.8</u>			60.5			14.3		
MT 1807	VIDA/MO8/3-4	49.9			60.9			15.0		
MT 1809	VIDA/MO 09/3-4	47.5			59.9			15.2		

2016-2019 ADVANCED SPRING WHEAT NURSERY, KALISPELL (DRY) : YIELD, TEST WEIGHT AND PROTEIN (CONTINUED)

LINE	VARIETY / PEDIGREE	YIELD			TEST WEIGHT			PROTEIN		
		(BU/AC)			(LB/BU)			(%)		
		2019	2017 <sup>1)</sup> , 2019	2016, 2017, 2019	2019	2017 <sup>1)</sup> , 2019	2016, 2017, 2019	2019	2017 <sup>1)</sup> , 2019	2016, 2017, 2019
MT 1811	MT1142/MTHW1150	<u>57.8</u>			61.5			14.4		
MT 1815	MT1206/MT1203	51.2			60.7			14.9		
MT 1818	VIDA/ULEN	42.7			61.3			16.1		
MT 1819	VIDA/ULEN	41.4			61.0			15.6		
MT 1821	VIDA/H0800103L	43.5			62.3			14.8		
MT 1824	MT1206/MT1273	43.0			59.2			15.2		
MT 1826	MT1142/MT1203	46.3			58.1			15.5		
MT 1837	VIDA/MT1219	39.1			60.6			15.4		
MT 1838	MT1206/MT172	41.4			59.5			14.7		
MT 1840	VIDA/LIMAGR1	43.2			62.6			14.3		
MT 1846	MT1053/SD4265	49.7			61.7			15.1		
MT 1853	MT1053/MT1273	48.0			62.1			14.8		
MT 1855	MT1053/MO8/3-4	<u>57.2</u>			61.9			14.8		
MT 1856	MT1007/MT1203	45.2			59.8			15.9		
MT 1857	MT1142/MT1273	<u>55.5</u>			61.7			15.3		
MT 1861	MT1142/MT1264	48.4			61.9			15.2		
MT 1862	MT1142/MT1264	44.4			60.0			14.9		
MT 1863	MT1007/MT1273	41.3			59.9			15.4		
MT 1865	VidaXConan(BC3F2)a2.1.3.6	48.9			59.8			14.5		
MT 1866	VidaXConan(BC3F2)a4.6.8.3	50.1			61.0			14.8		
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	48.2			61.1			15.6		
MT 1868	MT1053/LIMAGR1	<u>63.7</u>			61.3			13.5		
MT 1870	VIDA/H0800103L	<u>54.2</u>			61.4			14.6		
MT 1871	MT1007/TRVERSE	49.3			60.4			14.3		
MT 1872	MT1007/M0 09/3-4	47.1			60.7			14.4		
SYN 181	10S0059-28 (SY McCloud)	45.3			61.9			15.8		
SYN 182	09S0306-24 SS (SY Longmire)	45.5			62.0			15.3		
SYN 183	10S0176-18 CL (SY 611 CL2)	48.9			63.1			15.2		
WB 143	WB 9668	39.3			60.3			<u>16.7</u>		
AVERAGE		47.8	51.1	62.4	60.7	59.6	59.9	15.0	15.0	14.9
C.V.		12.7	7.1	9.6	0.5	1.3	1.2	1.6	2.8	3.3
PROBABILITY (LINE)		<0.01	<0.05	ns	<0.001	<0.01	<0.01	<0.001	<0.001	<0.001
LSD(0.05)		10.5	7.5	-	0.5	1.6	1.2	0.4	0.9	0.8

1) not planted in 2018

2) Underlined : highest or earliest value

3) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2016-2019 ADVANCED SPRING WHEAT NURSERY, BOZEMAN (DRY) : YIELD, TEST WEIGHT AND PROTEIN

LINE	VARIETY / PEDIGREE	YIELD				TEST WEIGHT				PROTEIN			
		(BU/AC)				(LB/BU)				(%)			
		2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019
AGRIPR 141	SY INGMAR	89.6	92.5	82.2	74.0	60.9	61.7	60.8	60.3	15.3	15.3	15.4	15.5
AGRIPR 151	SY Valda	<u>92.7</u>	<u>102.1</u>	<u>89.4</u>	<u>80.2</u>	60.6	61.2	60.5	60.4	14.3	14.4	14.7	14.6
AGRIPR 161	SY Rockford	<u>95.0</u>	<u>99.6</u>	<u>88.3</u>	<u>78.7</u>	58.6	60.0	59.6	59.3	14.2	14.1	14.4	14.6
BZ 92413R	WB GUNNISON	77.4	92.8	79.8	72.2	61.5	61.9	61.4	<u>61.1</u>	14.3	14.1	14.3	14.3
BZ 996434	CORBIN	83.1	89.9	79.1	72.5	59.9	61.2	61.0	<u>61.2</u>	15.1	15.0	15.1	14.9
CI 10003	THATCHER	70.5	71.5	64.6	58.9	59.8	60.5	59.3	59.1	15.1	15.2	15.6	15.4
CI 13596	FORTUNA	78.5	76.2	69.2	63.8	59.7	60.9	60.8	<u>61.0</u>	14.8	14.8	14.9	14.8
ND 695	REEDER	87.1	<u>95.9</u>	<u>84.2</u>	75.5	60.9	61.4	60.8	<u>60.8</u>	15.3	15.2	15.4	15.3
PI 574642	MCNEAL	74.8	79.2	73.1	67.3	59.7	60.3	59.4	59.3	15.7	16.0	15.9	15.6
PI 633974	CHOTEAU	82.6	91.3	79.6	72.2	58.7	60.4	59.7	59.9	15.3	15.2	15.3	15.3
PI 642366	VIDA	<u>91.9</u>	<u>104.7</u>	<u>92.1</u>	<u>84.4</u>	59.6	60.4	60.1	60.3	14.7	14.4	14.5	14.5
PI 660981	DUCLAIR	<u>94.0</u>	<u>102.8</u>	<u>87.4</u>	<u>77.2</u>	59.4	60.6	59.8	59.3	16.8	15.6	15.5	15.4
PI 671855	EGAN	81.6	86.0	75.1	67.4	59.5	60.4	59.7	59.5	<u>17.0</u>	<u>17.4</u>	<u>17.1</u>	<u>16.9</u>
PI 676978	LANNING	89.4	93.8	82.5	75.4	60.3	61.5	60.8	<u>60.5</u>	16.0	15.8	15.8	15.6
PI 679964	NS PRESSER CLP	89.1	<u>96.9</u>	<u>86.7</u>	<u>79.2</u>	58.7	59.5	58.9	59.1	14.8	14.8	15.1	14.9
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	89.5	93.5	81.8	72.5	58.8	60.3	60.1	60.1	15.3	15.0	15.2	15.3
WSCIA	ALUM	89.5	<u>98.6</u>	<u>85.2</u>	74.7	62.3	62.6	61.8	<u>61.4</u>	14.4	14.6	14.9	14.9
LIMAGR 171	LCS REBEL(LNR 13-0594)	<u>94.2</u>	<u>98.9</u>	<u>87.7</u>		61.4	62.1	61.8		14.8	14.7	14.8	
PI 690450	DAGMAR	89.1	<u>96.8</u>	<u>86.4</u>		60.1	61.3	60.9		15.3	15.4	15.5	
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	<u>91.1</u>	<u>98.3</u>	<u>85.8</u>		58.3	59.9	59.2		15.8	15.5	15.6	
WB 171	WB 9590	<u>92.8</u>	<u>100.3</u>	<u>86.2</u>		59.8	61.2	60.9		15.3	15.2	15.3	
WB 173	WB 9719	<u>94.3</u>	<u>105.0</u>	<u>90.7</u>		<u>64.2</u>	<u>64.6</u>	<u>63.9</u>		14.3	14.2	14.4	
MT 1716	MT1274/RB07	89.9	<u>99.3</u>			59.9	61.2			14.9	14.9		
MT 1736	12F5 2124/12SR 37	87.4	<u>96.3</u>			56.9	58.7			15.1	15.0		
MT 1742	MT1274/12F5 827	90.8	<u>98.0</u>			59.2	60.7			15.1	15.1		
MT 1743	MT1274/12F5 827	86.4	<u>96.3</u>			58.4	59.6			14.0	14.0		
MT 1748	12F5 2124/IDO868	88.5	94.3			59.4	59.9			15.3	15.4		
MT 1750	12SR93/12F5 1215	<u>91.5</u>	94.6			60.2	61.5			15.0	15.1		
MT 1756	MT1253/12F5 1215	84.9	91.1			58.5	59.8			14.8	15.1		
MT 1767	12SR225/12F5 827	<u>96.4</u>	<u>101.8</u>			57.8	59.4			15.4	15.4		
MT 1775	12F5 827/12F5 2124	<u>92.7</u>	<u>99.8</u>			59.1	60.0			15.4	15.2		
SYN 181	10S0059-28 (SY McCloud)	85.6	88.9			61.0	62.3			16.0	15.8		
SYN 182	09S0306-24 SS (SY Longmire)	87.2	<u>97.1</u>			61.7	62.2			15.2	15.0		
SYN 183	10S0176-18 CL (SY 611 CL2)	79.4	88.7			61.5	62.1			15.2	15.1		
LIMAGR 191	LNR 1156	87.8				60.2				14.5			

2016-2019 ADVANCED SPRING WHEAT NURSERY, BOZEMAN (DRY) : YIELD, TEST WEIGHT AND PROTEIN (CONTINUED)

LINE	VARIETY / PEDIGREE	YIELD				TEST WEIGHT				PROTEIN			
		(BU/AC)				(LB/BU)				(%)			
		2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019
LIMAGR 192	LNR 1751	89.3				59.4				14.9			
MT 1807	VIDA/MO8/3-4	<u>94.9</u>				58.9				14.8			
MT 1809	VIDA/MO 09/3-4	<u>93.3</u>				58.8				15.5			
MT 1811	MT1142/MTHW1150	73.9				59.8				15.2			
MT 1815	MT1206/MT1203	88.7				59.9				14.9			
MT 1818	VIDA/ULEN	<u>98.3</u>				60.8				15.8			
MT 1819	VIDA/ULEN	<u>99.7</u>				60.3				15.1			
MT 1821	VIDA/H0800103L	84.5				62.2				15.2			
MT 1824	MT1206/MT1273	<u>91.9</u>				59.3				14.8			
MT 1826	MT1142/MT1203	<u>91.8</u>				57.4				15.9			
MT 1837	VIDA/MT1219	86.0				59.5				15.3			
MT 1838	MT1206/MT172	85.2				58.3				14.3			
MT 1840	VIDA/LIMAGR1	83.3				61.4				14.2			
MT 1846	MT1053/SD4265	89.5				61.0				15.8			
MT 1853	MT1053/MT1273	83.3				60.7				14.8			
MT 1855	MT1053/MO8/3-4	<u>96.9</u>				60.6				14.7			
MT 1856	MT1007/MT1203	85.8				60.0				16.1			
MT 1857	MT1142/MT1273	82.3				61.1				15.1			
MT 1861	MT1142/MT1264	86.9				60.5				15.3			
MT 1862	MT1142/MT1264	90.1				59.7				15.0			
MT 1863	MT1007/MT1273	87.6				59.8				15.2			
MT 1865	VidaXConan(BC3F2)a2.1.3.6	87.4				59.2				14.5			
MT 1866	VidaXConan(BC3F2)a4.6.8.3	<u>94.2</u>				60.6				14.4			
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	87.1				60.2				15.0			
MT 1868	MT1053/LIMAGR1	<u>95.1</u>				59.6				14.5			
MT 1870	VIDA/H0800103L	<u>92.7</u>				60.3				14.3			
MT 1871	MT1007/TRVERSE	86.3				60.4				14.9			
MT 1872	MT1007/MO 09/3-4	<u>96.0</u>				60.3				14.8			
WB 143	WB 9668	84.1				59.4				16.7			
	AVERAGE	88.3	94.5	82.6	73.3	59.9	60.9	60.5	60.1	15.1	15.1	15.2	15.1
	C.V.	5.8	5.1	6.8	7.9	1REP	1.0	1.1	1.2	1REP	2.5	2.8	3.1
	PROBABILITY (LINE)	<0.001	<0.001	<0.001	<0.001	1REP	<0.001	<0.001	<0.001	1REP	<0.001	<0.001	<0.001
	LSD(0.05)	8.8	9.8	9.2	8.2	1REP	1.2	1.1	1.0	1REP	0.8	0.7	0.7

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2016-2019 ADVANCED SPRING WHEAT NURSERY, HUNTLEY (DRY) : YIELD, TEST WEIGHT AND PROTEIN

LINE	VARIETY / PEDIGREE	YIELD (BU/AC)			TEST WEIGHT (LB/BU)			PROTEIN (%)		
		2018 <sup>1)</sup>	2017- 2018	2016- 2018	2018 <sup>1)</sup>	2017- 2018	2016- 2018	2018 <sup>1)</sup>	2017- 2018	2016- 2018
AGRIPR 141	SY INGMAR	68.0	73.3	<u>78.1</u>	62.2	61.5	62.0	15.6	15.3	14.4
AGRIPR 151	SY Valda	76.4	75.2	<u>80.8</u>	62.0	60.8	<u>61.3</u>	14.9	14.7	13.9
AGRIPR 161	SY Rockford	<u>82.9</u>	80.5	<u>81.4</u>	62.0	60.8	<u>61.2</u>	14.8	14.7	13.6
BZ 92413R	WB GUNNISON	63.8	67.1	73.7	61.9	60.3	<u>61.1</u>	14.4	14.0	13.5
BZ 996434	CORBIN	68.6	73.8	<u>78.4</u>	62.3	<u>61.6</u>	<u>62.2</u>	15.4	14.7	13.5
CI 10003	THATCHER	61.4	62.2	59.4	60.3	59.5	60.4	15.7	15.8	15.1
CI 13596	FORTUNA	68.1	71.5	67.7	62.3	<u>62.2</u>	<u>62.3</u>	14.9	14.8	14.5
LIMAGR 143	LCS PRO	69.6	75.9	<u>75.7</u>	62.4	<u>61.4</u>	<u>61.7</u>	15.2	14.7	14.0
MT 1451	MT0827/09SR27	75.9	78.5	<u>84.6</u>	62.6	<u>61.4</u>	<u>61.6</u>	14.3	14.1	13.3
MT 1509	MT1002/MT1034	76.7	72.7	<u>76.6</u>	61.5	60.0	60.9	15.3	15.3	14.0
ND 695	REEDER	68.2	74.1	<u>78.5</u>	59.9	60.3	<u>61.3</u>	15.6	15.5	14.5
PI 574642	MCNEAL	76.4	71.0	<u>75.4</u>	60.5	59.2	60.1	15.7	15.4	14.5
PI 633974	CHOTEAU	<u>78.5</u>	73.8	<u>78.7</u>	62.3	<u>60.9</u>	<u>61.4</u>	15.5	15.1	14.1
PI 642366	VIDA	74.9	79.6	<u>82.7</u>	61.5	<u>60.9</u>	<u>61.2</u>	14.4	14.4	13.5
PI 660981	DUCLAIR	<u>79.9</u>	78.6	<u>85.1</u>	62.1	60.4	61.0	14.6	14.6	13.7
PI 671855	EGAN	71.5	76.3	<u>77.6</u>	60.3	59.8	60.6	<u>17.4</u>	<u>17.1</u>	<u>16.1</u>
PI 676978	LANNING	74.0	78.0	<u>78.0</u>	61.3	<u>61.2</u>	<u>61.4</u>	15.8	15.3	14.5
PI 679964	NS PRESSER CLP	<u>82.1</u>	76.3	<u>79.4</u>	58.4	57.7	59.1	14.8	14.7	13.6
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	71.9	72.9	<u>77.4</u>	62.1	<u>61.0</u>	<u>61.6</u>	15.6	15.2	14.2
WF 161	HRS 3616	63.4	72.0	<u>79.2</u>	62.6	<u>62.0</u>	<u>62.1</u>	15.2	14.9	14.2
WF 162	HRS 3504	73.7	71.4	<u>76.9</u>	60.2	58.7	59.7	14.6	14.6	13.4
WSCIA	ALUM	69.8	74.4	<u>79.4</u>	61.4	60.2	<u>61.3</u>	14.7	14.8	13.7
LIMAGR 171	LCS REBEL(LNR 13-0594)	73.4	77.0		62.8	<u>62.5</u>		15.5	15.0	
MT 1601	DUCLAIR/AC BARRIE	<u>81.2</u>	79.0		61.9	60.4		15.5	15.3	
MT 1617	CHOTEAU/NICK//MT1103	76.6	73.1		61.8	60.1		15.1	14.8	
PI 690450	DAGMAR	73.0	81.3		61.5	<u>61.5</u>		15.6	15.1	
MT 1625	MT1148/MT1133	65.8	72.9		61.8	<u>61.8</u>		16.6	15.9	
MT 1653	MT1167/MT1172	75.6	78.5		60.0	60.6		15.0	14.9	
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	<u>78.8</u>	<u>86.1</u>		61.3	60.8		16.0	15.5	
WB 171	WB 9590	68.1	71.3		61.7	<u>61.0</u>		15.4	15.0	
WB 173	WB 9719	60.1	73.0		63.2	<u>62.6</u>		14.3	14.5	
LIMAGR 181	LCS CANNON	<u>79.9</u>			<u>64.4</u>			15.3		
MT 1711	12F5 2124/12F5 1215	<u>79.5</u>			61.6			15.2		
MT 1713	MT1274/12F5 1215	73.8			63.2			15.4		
MT 1714	MT1274/12F5 827	<u>77.7</u>			62.6			15.6		

2016-2019 ADVANCED SPRING WHEAT NURSERY, HUNTLEY (DRY) : YIELD, TEST WEIGHT AND PROTEIN (CONTINUED)

LINE	VARIETY / PEDIGREE	YIELD			TEST WEIGHT			PROTEIN		
		(BU/AC)			(LB/BU)			(%)		
		2018 <sup>1)</sup>	2017-2018	2016-2018	2018 <sup>1)</sup>	2017-2018	2016-2018	2018 <sup>1)</sup>	2017-2018	2016-2018
MT 1716	MT1274/RB07	<u>84.4</u>			<u>63.9</u>			14.6		
MT 1719	12F5 827/12F5 2124	74.2			63.0			16.1		
MT 1729	12SR93/CDC OSLER	64.9			61.9			16.1		
MT 1731	12F5 827/RB07	77.2			60.6			16.7		
MT 1732	MT1253/12F5 827	69.6			62.8			16.0		
MT 1734	12SR93/12F5 1215	72.5			62.2			15.5		
MT 1736	12F5 2124/12SR 37	76.2			60.9			15.5		
MT 1738	12SR37/MT1214	74.1			61.7			15.9		
MT 1739	MT1274/12F5 1215	<u>82.4</u>			62.9			15.0		
MT 1742	MT1274/12F5 827	<u>78.1</u>			62.0			14.8		
MT 1743	MT1274/12F5 827	<u>79.9</u>			60.3			14.7		
MT 1745	MT1274/12SR 37	76.4			62.3			15.7		
MT 1748	12F5 2124/IDO868	74.4			59.0			16.0		
MT 1749	IDO868/MT1253	74.1			60.7			16.0		
MT 1750	12SR93/12F5 1215	<u>79.6</u>			63.2			15.3		
MT 1754	MT1253/12SR 37	75.8			60.9			15.8		
MT 1756	MT1253/12F5 1215	<u>84.9</u>			60.2			15.1		
MT 1764	SD4250/12F5 2124	62.4			60.6			<u>17.0</u>		
MT 1766	MT1274/12SR 225	74.8			61.9			15.1		
MT 1767	12SR225/12F5 827	<u>82.0</u>			61.5			15.4		
MT 1770	MT1214/MT 1253	67.6			60.4			16.4		
MT 1773	MT1253/MT1274	62.2			61.1			14.4		
MT 1775	12F5 827/12F5 2124	73.3			60.6			15.6		
ND 828	ND 828	72.8			62.8			16.7		
SYN 181	10S0059-28	70.1			<u>64.0</u>			15.8		
SYN 182	09S0306-24 SS	77.4			62.2			15.2		
SYN 183	10S0176-18 CL	64.0			62.4			15.2		
WB 181	WB 9653	71.3			60.4			14.9		
WF 181	HRS 3419	75.5			60.4			14.5		
AVERAGE		73.6	74.9	77.5	61.7	60.7	61.2	15.4	15.0	14.1
C.V.		5.9	8.8	8.6	1.0	1.4	1.3	2.2	2.2	3.4
PROBABILITY (LINE)		<0.001	ns	<0.05	<0.001	<0.01	<0.01	<0.001	<0.001	<0.001
LSD(0.05)		7.5	-	11	1.1	1.8	1.3	0.5	0.7	0.8

1) no harvest due to hail in 2019

2) Underlined : highest or earliest value

3) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2016-2019 ADVANCED SPRING WHEAT NURSERY, MOCCASIN (DRY) : YIELD, TEST WEIGHT AND PROTEIN

LINE	VARIETY / PEDIGREE	YIELD				TEST WEIGHT				PROTEIN			
		(BU/AC)				(LB/BU)				(%)			
		2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019
AGRIPR 141	SY INGMAR	52.8	<u>52.5</u>	45.6	42.3	60.4	<u>62.0</u>	60.5	<u>61.2</u>	13.0	<u>12.5</u>	13.2	<u>13.2</u>
AGRIPR 151	SY Valda	49.5	<u>53.1</u>	45.0	42.4	59.5	61.0	59.9	<u>60.7</u>	13.0	11.8	12.8	12.5
AGRIPR 161	SY Rockford	<u>61.4</u>	<u>59.4</u>	<u>51.9</u>	<u>48.0</u>	59.7	60.7	59.9	<u>60.1</u>	12.5	11.4	12.4	12.6
BZ 92413R	WB GUNNISON	53.2	<u>57.6</u>	<u>49.3</u>	44.8	59.7	61.0	59.8	<u>60.5</u>	13.1	11.8	12.6	12.4
BZ 996434	CORBIN	53.2	<u>52.8</u>	45.5	41.3	60.1	59.9	59.2	<u>60.1</u>	13.4	12.2	13.1	<u>13.2</u>
CI 10003	THATCHER	27.5	36.2	33.2	32.8	55.0	57.9	56.6	<u>57.2</u>	<u>14.6</u>	<u>12.8</u>	<u>13.8</u>	<u>13.6</u>
CI 13596	FORTUNA	43.1	43.8	39.3	35.9	59.1	60.2	59.2	<u>59.8</u>	13.5	<u>12.3</u>	13.1	12.9
ND 695	REEDER	43.8	50.4	44.4	42.1	60.6	61.5	60.1	<u>60.8</u>	12.8	11.8	12.7	12.6
PI 574642	MCNEAL	45.9	50.8	45.4	42.2	59.2	60.7	59.3	<u>59.9</u>	12.6	11.5	12.4	12.4
PI 633974	CHOTEAU	50.3	<u>51.2</u>	45.1	40.7	60.4	61.0	60.1	<u>60.7</u>	13.1	<u>12.3</u>	13.1	<u>13.2</u>
PI 642366	VIDA	<u>53.5</u>	<u>55.2</u>	<u>47.3</u>	43.7	59.3	60.5	59.2	<u>60.0</u>	11.8	10.8	11.9	11.9
PI 660981	DUCLAIR	47.6	49.2	44.1	41.1	60.0	60.7	59.3	<u>59.9</u>	12.7	11.7	12.6	12.4
PI 671855	EGAN	47.1	49.8	43.2	39.2	58.7	60.1	58.7	<u>59.4</u>	<u>14.4</u>	<u>13.1</u>	<u>14.1</u>	<u>14.2</u>
PI 676978	LANNING	<u>59.1</u>	<u>57.7</u>	<u>50.3</u>	46.6	61.2	61.6	59.8	<u>60.5</u>	12.5	11.6	12.5	12.2
PI 679964	NS PRESSER CLP	51.6	<u>54.3</u>	<u>48.1</u>	44.2	57.9	59.0	58.0	<u>59.1</u>	12.5	11.1	12.0	12.2
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	47.9	<u>51.5</u>	45.0	42.4	61.1	<u>62.1</u>	<u>60.9</u>	<u>61.2</u>	12.9	12.1	13.0	13.1
WSCIA	ALUM	42.1	50.4	44.8	44.0	58.0	60.4	59.6	<u>60.5</u>	13.4	11.9	12.8	12.6
LIMAGR 171	LCS REBEL(LNR 13-0594)	49.3	<u>54.4</u>	<u>47.3</u>		61.1	<u>62.1</u>	<u>60.8</u>		12.7	11.4	12.6	
PI 690450	DAGMAR	46.4	<u>53.2</u>	<u>48.2</u>		61.0	<u>61.8</u>	<u>60.8</u>		12.6	11.6	12.5	
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	53.3	<u>54.1</u>	<u>47.7</u>		58.8	59.7	58.4		13.7	<u>12.9</u>	<u>13.7</u>	
WB 171	WB 9590	<u>56.9</u>	<u>57.3</u>	<u>49.2</u>		60.4	61.5	60.1		12.7	11.9	12.9	
WB 173	WB 9719	44.5	50.7	44.5		<u>62.6</u>	<u>63.3</u>	<u>61.9</u>		11.8	11.3	12.3	
MT 1716	MT1274/RB07	43.0	50.6			60.6	<u>61.8</u>			12.4	11.4		
MT 1736	12F5 2124/12SR 37	51.7	<u>52.8</u>			57.5	58.7			12.6	11.6		
MT 1742	MT1274/12F5 827	49.8	<u>55.4</u>			61.0	<u>62.0</u>			12.4	11.3		
MT 1743	MT1274/12F5 827	45.0	<u>52.0</u>			59.4	60.0			12.0	11.2		
MT 1748	12F5 2124/IDO868	48.5	<u>51.4</u>			57.1	58.7			13.5	12.2		
MT 1750	12SR93/12F5 1215	<u>58.1</u>	<u>58.5</u>			61.1	<u>61.8</u>			12.9	11.8		
MT 1756	MT1253/12F5 1215	52.5	<u>50.9</u>			58.8	59.5			12.3	11.6		
MT 1767	12SR225/12F5 827	52.3	<u>54.5</u>			58.0	59.4			13.2	12.0		
MT 1775	12F5 827/12F5 2124	53.3	<u>54.2</u>			59.0	59.8			12.2	11.2		
SYN 181	10S0059-28 (SY McCloud)	46.7	<u>51.4</u>			<u>62.4</u>	<u>62.9</u>			13.3	<u>12.8</u>		
SYN 182	09S0306-24 SS (SY Longmire)	48.6	50.7			<u>61.5</u>	<u>62.2</u>			12.5	11.9		
SYN 183	10S0176-18 CL (SY 611 CL2)	47.8	<u>54.0</u>			<u>62.5</u>	<u>63.1</u>			12.6	12.0		
LIMAGR 191	LNR 1156	46.1				59.7				12.8			

2016-2019 ADVANCED SPRING WHEAT NURSERY, MOCCASIN (DRY) : YIELD, TEST WEIGHT AND PROTEIN (CONTINUED)

LINE	VARIETY / PEDIGREE	YIELD				TEST WEIGHT				PROTEIN			
		(BU/AC)				(LB/BU)				(%)			
		2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019
LIMAGR 192	LNR 1751	<u>61.1</u>				60.5				12.4			
MT 1807	VIDA/MO8/3-4	51.0				60.1				12.2			
MT 1809	VIDA/MO 09/3-4	<u>59.2</u>				59.4				12.1			
MT 1811	MT1142/MTHW1150	46.1				60.0				12.5			
MT 1815	MT1206/MT1203	51.8				58.9				13.5			
MT 1818	VIDA/ULEN	49.8				59.2				13.1			
MT 1819	VIDA/ULEN	42.9				60.6				12.5			
MT 1821	VIDA/H0800103L	<u>54.9</u>				<u>62.1</u>				12.6			
MT 1824	MT1206/MT1273	42.9				58.0				13.1			
MT 1826	MT1142/MT1203	51.1				59.6				12.6			
MT 1837	VIDA/MT1219	47.6				60.0				13.2			
MT 1838	MT1206/MT172	49.1				59.8				12.2			
MT 1840	VIDA/LIMAGR1	47.5				<u>61.5</u>				12.2			
MT 1846	MT1053/SD4265	<u>54.6</u>				60.2				12.9			
MT 1853	MT1053/MT1273	49.8				61.0				12.3			
MT 1855	MT1053/MO8/3-4	53.2				58.8				13.0			
MT 1856	MT1007/MT1203	49.2				60.4				12.8			
MT 1857	MT1142/MT1273	45.2				60.0				12.6			
MT 1861	MT1142/MT1264	44.2				<u>61.9</u>				12.9			
MT 1862	MT1142/MT1264	<u>54.4</u>				60.5				12.8			
MT 1863	MT1007/MT1273	51.9				60.8				12.2			
MT 1865	VidaXConan(BC3F2)a2.1.3.6	49.6				57.1				12.8			
MT 1866	VidaXConan(BC3F2)a4.6.8.3	49.8				59.2				12.6			
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	51.3				59.6				13.7			
MT 1868	MT1053/LIMAGR1	47.6				58.2				12.8			
MT 1870	VIDA/H0800103L	51.7				61.1				12.0			
MT 1871	MT1007/TRVERSE	47.8				59.8				12.6			
MT 1872	MT1007/MO 09/3-4	51.2				57.5				13.3			
WB 143	WB 9668	45.8				61.4				13.6			
	MEAN	49.6	52.4	45.7	42.0	59.8	60.8	59.7	60.1	12.8	11.8	12.8	12.8
	C.V.	9.5	8.1	8.4	13.2	1.2	1.3	1.3	2.1	3.0	3.6	2.8	5.9
	PROBABILITY (ENTRY)	<0.001	<0.05	<0.001	ns	<0.001	<0.001	<0.001	<0.05	<0.001	<0.001	<0.001	<0.05
	LSD(0.05)	8.0	8.6	6.3	-	1.2	1.6	1.3	1.8	0.7	0.9	0.6	1.1

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2016-2019 ADVANCED SPRING WHEAT NURSERY, CONRAD (DRY) : YIELD, TEST WEIGHT AND PROTEIN

LINE	VARIETY / PEDIGREE	YIELD				TEST WEIGHT				PROTEIN			
		(BU/AC)				(LB/BU)				(% )			
		2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019
AGRIPR 141	SY INGMAR	53.7	59.5	57.6	<u>60.6</u>	61.4	59.8	59.6	60.8	15.2	15.4	15.5	15.2
AGRIPR 151	SY Valda	50.1	63.1	61.2	<u>63.9</u>	62.0	60.0	59.5	60.8	15.0	14.8	14.8	14.3
AGRIPR 161	SY Rockford	45.3	55.4	55.1	59.4	59.7	58.1	57.7	58.8	14.9	14.8	14.7	14.4
BZ 92413R	WB GUNNISON	<u>58.1</u>	65.1	64.1	<u>64.6</u>	62.7	61.2	<u>60.5</u>	<u>61.3</u>	13.3	13.5	13.7	13.4
BZ 996434	CORBIN	51.6	60.5	59.7	<u>61.2</u>	62.9	61.1	60.1	61.1	14.2	14.3	14.6	14.3
CI 10003	THATCHER	35.3	45.9	46.8	47.5	57.7	57.0	56.4	57.9	15.0	15.0	15.1	14.6
CI 13596	FORTUNA	54.0	57.1	56.3	57.6	62.1	60.5	59.8	60.7	13.9	14.3	14.4	14.1
ND 695	REEDER	46.2	57.7	61.1	<u>61.6</u>	61.9	59.9	59.4	60.4	<u>15.5</u>	<u>15.5</u>	<u>15.4</u>	<u>15.0</u>
PI 574642	MCNEAL	50.9	55.6	56.0	55.5	61.2	59.1	58.2	59.4	13.9	14.4	14.4	14.0
PI 633974	CHOTEAU	53.0	60.0	60.0	<u>60.1</u>	60.7	59.4	59.0	59.8	14.7	14.9	15.1	14.7
PI 642366	VIDA	<u>58.1</u>	64.6	62.3	<u>65.1</u>	61.9	59.4	58.8	59.8	14.1	14.3	14.2	14.0
PI 660981	DUCLAIR	54.2	63.6	62.7	<u>62.0</u>	60.9	59.5	58.6	59.1	<u>15.6</u>	15.1	15.1	14.7
PI 671855	EGAN	46.3	54.6	54.9	57.6	60.1	58.3	57.9	59.2	<u>15.6</u>	<u>15.9</u>	<u>15.8</u>	<u>15.5</u>
PI 676978	LANNING	49.3	62.8	61.4	<u>62.7</u>	61.5	59.9	59.0	59.9	<u>15.5</u>	<u>15.4</u>	<u>15.4</u>	<u>15.1</u>
PI 679964	NS PRESSER CLP	57.1	66.9	<u>66.4</u>	<u>66.9</u>	61.5	58.8	58.2	59.0	14.0	14.5	14.4	13.9
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	<u>59.4</u>	62.6	63.3	<u>62.4</u>	61.3	59.3	59.3	60.1	15.2	<u>15.5</u>	15.3	<u>15.0</u>
WSCIA	ALUM	46.7	52.1	57.1	59.6	60.4	59.1	58.9	60.5	14.7	14.9	14.6	14.2
LIMAGR 171	LCS REBEL(LNR 13-0594)	46.5	58.3	60.6		<u>63.9</u>	61.1	<u>60.5</u>		<u>15.5</u>	<u>15.4</u>	15.3	
PI 690450	DAGMAR	<u>66.7</u>	<u>76.3</u>	<u>74.0</u>		62.7	61.0	60.4		14.8	15.0	15.0	
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	52.3	58.8	59.5		59.6	58.1	57.7		<u>15.9</u>	<u>15.8</u>	<u>15.8</u>	
WB 171	WB 9590	50.6	58.6	57.3		62.4	60.5	60.2		<u>15.7</u>	<u>15.6</u>	<u>15.7</u>	
WB 173	WB 9719	<u>64.2</u>	<u>70.8</u>	<u>68.3</u>		<u>65.2</u>	<u>62.7</u>	<u>61.9</u>		13.9	14.3	14.3	
MT 1716	MT1274/RB07	47.5	61.7			62.3	60.4			<u>15.8</u>	<u>15.3</u>		
MT 1736	12F5 2124/12SR 37	<u>62.8</u>	67.3			60.6	59.1			14.4	14.6		
MT 1742	MT1274/12F5 827	53.2	59.6			62.3	60.3			14.6	14.6		
MT 1743	MT1274/12F5 827	<u>65.3</u>	<u>70.1</u>			61.1	58.6			14.3	14.7		
MT 1748	12F5 2124/IDO868	<u>61.2</u>	<u>70.7</u>			59.9	58.0			15.1	<u>15.3</u>		
MT 1750	12SR93/12F5 1215	54.2	65.1			63.3	<u>61.6</u>			14.1	14.5		
MT 1756	MT1253/12F5 1215	56.3	58.0			60.2	58.1			14.2	14.6		
MT 1767	12SR225/12F5 827	55.4	62.7			60.2	58.5			14.4	14.5		
MT 1775	12F5 827/12F5 2124	<u>58.1</u>	66.8			61.2	58.7			14.5	14.4		
SYN 181	10S0059-28 (SY McCloud)	51.8	59.8			63.3	61.4			<u>16.0</u>	<u>15.7</u>		
SYN 182	09S0306-24 SS (SY Longmire)	<u>59.7</u>	62.8			62.1	59.5			14.7	14.8		
SYN 183	10S0176-18 CL (SY 611 CL2)	51.0	60.2			63.4	61.3			15.1	15.1		
LIMAGR 191	LNR 1156	47.9				62.0				14.9			

2016-2019 ADVANCED SPRING WHEAT NURSERY, CONRAD (DRY) : YIELD, TEST WEIGHT AND PROTEIN (CONTINUED)

LINE	VARIETY / PEDIGREE	YIELD				TEST WEIGHT				PROTEIN			
		(BU/AC)				(LB/BU)				(% )			
		2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019
LIMAGR 192	LNR 1751	53.9				62.9				15.3			
MT 1807	VIDA/MO8/3-4	54.6				61.2				14.5			
MT 1809	VIDA/MO 09/3-4	<u>62.2</u>				61.4				14.9			
MT 1811	MT1142/MTHW1150	44.2				61.5				14.4			
MT 1815	MT1206/MT1203	<u>62.3</u>				61.4				14.9			
MT 1818	VIDA/ULEN	50.6				61.4				<u>15.5</u>			
MT 1819	VIDA/ULEN	39.7				58.7				<u>15.8</u>			
MT 1821	VIDA/H0800103L	54.9				62.5				15.2			
MT 1824	MT1206/MT1273	55.5				60.4				15.0			
MT 1826	MT1142/MT1203	<u>58.7</u>				60.7				15.0			
MT 1837	VIDA/MT1219	52.7				62.6				<u>15.4</u>			
MT 1838	MT1206/MT172	54.4				59.4				14.1			
MT 1840	VIDA/LIMAGR1	56.0				63.8				13.9			
MT 1846	MT1053/SD4265	57.1				61.6				<u>15.4</u>			
MT 1853	MT1053/MT1273	<u>62.4</u>				63.5				14.0			
MT 1855	MT1053/MO8/3-4	57.2				62.2				14.6			
MT 1856	MT1007/MT1203	<u>58.7</u>				61.2				15.2			
MT 1857	MT1142/MT1273	<u>61.0</u>				62.5				15.1			
MT 1861	MT1142/MT1264	57.4				63.4				14.7			
MT 1862	MT1142/MT1264	<u>62.9</u>				61.6				14.4			
MT 1863	MT1007/MT1273	55.5				61.6				14.9			
MT 1865	VidaXConan(BC3F2)a2.1.3.6	<u>59.8</u>				61.2				14.4			
MT 1866	VidaXConan(BC3F2)a4.6.8.3	<u>63.5</u>				62.0				14.2			
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	55.8				61.4				15.3			
MT 1868	MT1053/LIMAGR1	<u>61.3</u>				61.6				12.8			
MT 1870	VIDA/H0800103L	55.8				61.3				14.3			
MT 1871	MT1007/TRVERSE	<u>63.3</u>				61.8				14.2			
MT 1872	MT1007/MO 09/3-4	55.4				61.0				14.6			
WB 143	WB 9668	55.1				62.2				<u>15.5</u>			
	AVERAGE	54.9	61.6	60.2	60.5	61.6	59.7	59.2	59.9	14.8	14.9	14.9	14.5
	C.V.	9.5	7.2	8.1	8.2	1.3	1.1	1.5	2.3	2.7	2.4	2.2	3.2
	PROBABILITY (LINE)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	ns	<0.001	<0.001	<0.001	<0.001
	LSD(0.05)	9.0	9.0	8.0	7.1	1.4	1.3	1.5	-	0.7	0.7	0.5	0.7

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2016-2019 ADVANCED SPRING WHEAT NURSERY, HAVRE (DRY) : YIELD, TEST WEIGHT AND PROTEIN

LINE	VARIETY / PEDIGREE	YIELD				TEST WEIGHT				PROTEIN			
		(BU/AC)				(LB/BU)				(%)			
		2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019
AGRIPR 141	SY INGMAR	44.6	<u>42.9</u>	38.8	<u>39.4</u>	60.6	<u>61.2</u>	<u>60.6</u>	<u>60.0</u>	16.3	16.2	16.2	16.1
AGRIPR 151	SY Valda	47.5	<u>44.9</u>	39.3	<u>39.1</u>	59.9	<u>60.0</u>	<u>60.0</u>	<u>59.6</u>	15.9	16.1	16.1	15.8
AGRIPR 161	SY Rockford	45.2	<u>44.7</u>	40.2	<u>40.5</u>	57.9	58.8	58.5	<u>57.9</u>	15.8	15.7	15.7	15.7
BZ 92413R	WB GUNNISON	<u>52.6</u>	<u>44.7</u>	38.7	37.5	60.2	60.3	59.7	<u>59.0</u>	15.1	15.2	15.2	15.1
BZ 996434	CORBIN	45.6	<u>43.2</u>	36.9	<u>39.1</u>	59.9	60.4	59.9	<u>59.6</u>	16.5	16.6	16.5	16.1
CI 10003	THATCHER	37.6	35.9	33.1	32.9	54.1	54.9	55.2	55.3	16.3	16.6	16.3	16.3
CI 13596	FORTUNA	41.2	38.3	34.6	35.1	58.0	58.7	58.4	58.6	15.7	15.7	15.6	15.7
ND 695	REEDER	42.3	<u>42.9</u>	38.5	<u>40.1</u>	59.7	59.8	59.3	<u>59.0</u>	15.9	15.9	15.9	15.7
PI 574642	MCNEAL	47.0	<u>43.4</u>	39.8	<u>39.7</u>	58.5	58.0	57.7	<u>57.2</u>	15.5	15.8	15.8	15.7
PI 633974	CHOTEAU	44.5	40.6	35.8	36.1	58.8	59.2	58.7	58.6	16.6	16.4	16.4	16.2
PI 642366	VIDA	<u>52.1</u>	<u>48.2</u>	<u>44.2</u>	<u>43.3</u>	59.4	59.5	59.2	58.5	15.4	15.2	15.3	15.4
PI 660981	DUCLAIR	49.2	42.1	36.9	37.3	58.6	59.2	58.5	58.3	16.1	16.0	16.1	16.0
PI 671855	EGAN	44.1	41.6	37.5	<u>39.8</u>	57.2	57.3	56.9	56.9	17.1	<u>17.3</u>	<u>17.2</u>	<u>17.2</u>
PI 676978	LANNING	44.5	<u>44.3</u>	38.7	<u>40.5</u>	59.9	59.2	58.9	58.7	16.8	16.5	16.6	16.5
PI 679964	NS PRESSER CLP	46.8	<u>45.9</u>	42.3	<u>40.6</u>	58.4	58.5	58.5	57.4	15.7	15.5	15.4	15.5
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	<u>51.4</u>	<u>48.0</u>	41.6	<u>42.1</u>	58.8	59.3	58.9	58.6	16.5	16.4	16.3	16.2
WSCIA	ALUM	<u>50.0</u>	<u>45.0</u>	40.2	<u>43.0</u>	59.5	59.8	59.4	<u>59.4</u>	15.4	15.6	15.7	15.7
LIMAGR 171	LCS REBEL(LNR 13-0594)	44.0	41.2	35.6		59.8	60.6	<u>60.5</u>		16.5	16.4	16.5	
PI 690450	DAGMAR	<u>50.1</u>	<u>47.1</u>	41.2		59.3	60.2	59.9		16.3	16.2	16.2	
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	46.7	41.0	36.0		58.5	58.9	58.3		16.6	16.7	16.7	
WB 171	WB 9590	45.9	42.2	36.0		60.3	<u>60.9</u>	<u>60.9</u>		16.5	16.5	16.4	
WB 173	WB 9719	<u>49.6</u>	<u>48.4</u>	43.0		<u>61.6</u>	<u>61.9</u>	<u>61.4</u>		15.5	15.4	15.4	
MT 1716	MT1274/RB07	<u>51.0</u>	<u>46.8</u>			60.0	60.6			15.8	15.8		
MT 1736	12F5 2124/12SR 37	48.4	<u>46.3</u>			57.5	58.3			16.1	16.0		
MT 1742	MT1274/12F5 827	<u>49.7</u>	<u>47.1</u>			59.3	59.9			15.9	15.6		
MT 1743	MT1274/12F5 827	<u>50.1</u>	<u>47.8</u>			57.4	58.0			15.8	15.9		
MT 1748	12F5 2124/IDO868	<u>49.6</u>	<u>45.6</u>			57.4	57.5			16.3	16.5		
MT 1750	12SR93/12F5 1215	<u>52.0</u>	<u>48.0</u>			60.0	60.7			15.5	15.7		
MT 1756	MT1253/12F5 1215	<u>53.1</u>	<u>47.8</u>			58.1	58.6			16.1	15.9		
MT 1767	12SR225/12F5 827	<u>51.1</u>	<u>46.9</u>			57.9	57.8			16.6	16.6		
MT 1775	12F5 827/12F5 2124	46.2	<u>46.7</u>			57.9	58.9			16.2	15.8		
SYN 181	10S0059-28 (SY McCloud)	41.4	40.7			60.5	<u>61.6</u>			17.1	<u>16.9</u>		
SYN 182	09S0306-24 SS (SY Longmire)	<u>50.4</u>	<u>46.6</u>			60.8	<u>60.8</u>			16.6	16.5		
SYN 183	10S0176-18 CL (SY 611 CL2)	46.1	<u>44.3</u>			<u>61.1</u>	<u>61.1</u>			16.1	16.0		
LIMAGR 191	LNR 1156	48.4				59.8				16.1			

2016-2019 ADVANCED SPRING WHEAT NURSERY, HAVRE (DRY) : YIELD, TEST WEIGHT AND PROTEIN (CONTINUED)

LINE	VARIETY / PEDIGREE	YIELD				TEST WEIGHT				PROTEIN			
		(BU/AC)				(LB/BU)				(%)			
		2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019
LIMAGR 192	LNR 1751	45.0				59.1				15.8			
MT 1807	VIDA/MO8/3-4	<u>49.7</u>				59.5				16.0			
MT 1809	VIDA/MO 09/3-4	<u>52.1</u>				58.4				16.0			
MT 1811	MT1142/MTHW1150	<u>51.7</u>				60.1				15.5			
MT 1815	MT1206/MT1203	<u>52.4</u>				59.2				16.0			
MT 1818	VIDA/ULEN	48.7				58.5				16.5			
MT 1819	VIDA/ULEN	41.4				58.8				16.8			
MT 1821	VIDA/H0800103L	<u>50.2</u>				60.8				16.0			
MT 1824	MT1206/MT1273	<u>53.3</u>				58.7				16.4			
MT 1826	MT1142/MT1203	48.8				56.3				16.6			
MT 1837	VIDA/MT1219	44.7				58.6				16.6			
MT 1838	MT1206/MT172	<u>51.4</u>				58.3				15.9			
MT 1840	VIDA/LIMAGR1	<u>50.1</u>				60.9				15.5			
MT 1846	MT1053/SD4265	45.8				59.4				16.9			
MT 1853	MT1053/MT1273	<u>52.7</u>				60.7				15.8			
MT 1855	MT1053/MO8/3-4	<u>49.7</u>				58.6				15.9			
MT 1856	MT1007/MT1203	47.6				58.2				16.7			
MT 1857	MT1142/MT1273	<u>52.6</u>				59.5				16.1			
MT 1861	MT1142/MT1264	<u>53.1</u>				<u>61.2</u>				16.4			
MT 1862	MT1142/MT1264	<u>51.8</u>				59.1				16.1			
MT 1863	MT1007/MT1273	48.2				59.0				16.5			
MT 1865	VidaXConan(BC3F2)a2.1.3.6	<u>50.9</u>				58.2				15.4			
MT 1866	VidaXConan(BC3F2)a4.6.8.3	<u>49.5</u>				59.6				15.8			
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	46.9				59.3				16.9			
MT 1868	MT1053/LIMAGR1	<u>52.9</u>				58.8				14.9			
MT 1870	VIDA/H0800103L	48.4				59.8				15.1			
MT 1871	MT1007/TRVERSE	<u>51.6</u>				58.9				15.9			
MT 1872	MT1007/MO 09/3-4	<u>54.4</u>				59.3				15.5			
WB 143	WB 9668	41.2				60.2				18.1			
	AVERAGE	48.4	44.4	38.6	39.2	59.1	59.4	59.1	58.4	16.1	16.1	16.1	15.9
	C.V.	6.2	6.2	12.2	8.9	0.6	1.0	1.1	1.4	1.2	1.6	1.5	2.1
	PROBABILITY (LINE)	<0.001	<0.01	ns	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	LSD(0.05)	5.1	5.6	-	4.9	0.6	1.2	1.1	1.2	0.3	0.5	0.4	0.5

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2016-2019 ADVANCED SPRING WHEAT NURSERY, SIDNEY (DRY) : YIELD, TEST WEIGHT AND PROTEIN

LINE	VARIETY / PEDIGREE	YIELD				TEST WEIGHT				PROTEIN			
		(BU/AC)				(LB/BU)				(%)			
		2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019
AGRIPR 141	SY INGMAR	84.7	65.7	54.4	51.8	63.2	64.2	63.5	<u>63.6</u>	14.9	<u>15.4</u>	<u>15.0</u>	<u>14.5</u>
AGRIPR 151	SY Valda	88.9	<u>73.8</u>	<u>57.2</u>	<u>54.5</u>	63.3	63.9	63.4	<u>63.4</u>	13.9	14.1	14.1	13.6
AGRIPR 161	SY Rockford	<u>98.9</u>	<u>74.8</u>	<u>61.4</u>	<u>58.0</u>	62.2	62.6	62.2	62.1	13.0	13.9	13.9	13.4
BZ 92413R	WB GUNNISON	73.5	64.0	51.2	47.5	63.4	63.6	63.2	<u>63.4</u>	13.2	13.9	13.8	13.3
BZ 996434	CORBIN	80.8	65.7	51.7	49.6	62.7	63.4	63.0	<u>63.1</u>	14.1	14.7	14.5	13.9
CI 10003	THATCHER	76.6	61.5	46.7	43.8	61.0	60.9	59.5	60.0	13.5	14.7	14.7	14.3
CI 13596	FORTUNA	70.8	56.6	47.5	45.4	62.2	62.7	62.2	62.3	13.3	14.0	14.1	13.9
ND 695	REEDER	88.1	<u>75.0</u>	<u>60.6</u>	<u>58.1</u>	63.4	63.6	63.1	<u>63.2</u>	14.0	14.5	14.3	14.0
PI 574642	MCNEAL	87.5	<u>75.1</u>	<u>58.0</u>	<u>54.6</u>	62.9	63.1	61.8	61.8	12.8	13.5	13.7	13.7
PI 633974	CHOTEAU	<u>91.8</u>	71.0	54.0	<u>52.1</u>	62.3	62.9	62.1	62.2	13.9	14.6	14.4	13.9
PI 642366	VIDA	86.3	<u>73.7</u>	<u>61.3</u>	<u>57.3</u>	62.5	63.2	62.8	62.3	13.2	13.8	13.4	13.5
PI 660981	DUCLAIR	86.9	69.6	53.8	51.7	62.3	62.7	61.9	62.1	13.1	14.1	14.2	13.6
PI 671855	EGAN	79.7	64.8	52.2	48.5	62.1	62.3	60.8	61.1	14.7	<u>15.8</u>	<u>15.6</u>	<u>15.2</u>
PI 676978	LANNING	84.3	70.6	<u>56.4</u>	<u>53.2</u>	62.8	63.0	62.6	62.8	14.9	<u>15.3</u>	<u>15.0</u>	14.2
PI 679964	NS PRESSER CLP	<u>91.7</u>	<u>74.6</u>	<u>62.0</u>	<u>58.3</u>	62.0	62.4	61.9	61.8	13.4	14.1	13.6	13.4
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	86.2	69.1	<u>55.8</u>	51.8	62.5	63.2	62.7	<u>62.9</u>	13.0	14.0	14.1	13.5
WSCIA	ALUM	89.1	<u>75.2</u>	<u>58.7</u>	<u>55.9</u>	63.6	64.4	63.7	<u>63.8</u>	12.6	13.6	13.7	13.3
LIMAGR 171	LCS REBEL(LNR 13-0594)	84.2	67.8	<u>55.3</u>		64.2	64.8	<u>64.6</u>		14.2	14.9	14.7	
PI 690450	DAGMAR	82.8	70.5	<u>57.7</u>		63.2	63.6	63.4		13.6	14.3	14.3	
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	83.6	66.6	51.3		61.4	62.1	60.9		14.6	15.0	<u>15.0</u>	
WB 171	WB 9590	85.4	<u>72.0</u>	<u>58.3</u>		63.3	64.1	<u>64.2</u>		14.3	14.6	14.4	
WB 173	WB 9719	<u>97.8</u>	<u>79.7</u>	<u>62.4</u>		<u>66.4</u>	<u>66.3</u>	<u>65.3</u>		13.0	14.3	14.0	
MT 1716	MT1274/RB07	91.4	<u>73.7</u>			63.0	64.2			13.4	13.8		
MT 1736	12F5 2124/12SR 37	80.5	67.2			61.0	61.7			13.4	14.3		
MT 1742	MT1274/12F5 827	84.3	68.4			63.0	63.6			13.0	13.7		
MT 1743	MT1274/12F5 827	<u>92.6</u>	<u>75.4</u>			61.8	62.3			12.7	13.7		
MT 1748	12F5 2124/IDO868	84.4	<u>72.5</u>			62.0	62.4			14.5	15.0		
MT 1750	12SR93/12F5 1215	89.5	<u>72.1</u>			63.6	64.2			13.1	14.2		
MT 1756	MT1253/12F5 1215	91.4	<u>72.7</u>			61.5	61.8			13.2	14.3		
MT 1767	12SR225/12F5 827	90.6	<u>72.8</u>			61.9	62.4			13.6	14.5		
MT 1775	12F5 827/12F5 2124	86.9	<u>73.8</u>			61.9	62.4			14.1	14.6		
SYN 181	10S0059-28 (SY McCloud)	78.4	64.2			64.1	64.9			<u>15.5</u>	<u>15.8</u>		
SYN 182	09S0306-24 SS (SY Longmire)	83.0	70.7			64.5	64.7			13.7	14.6		
SYN 183	10S0176-18 CL (SY 611 CL2)	85.6	70.3			64.8	65.1			13.2	14.2		
LIMAGR 191	LNR 1156	85.0				63.3				13.4			

2016-2019 ADVANCED SPRING WHEAT NURSERY, SIDNEY (DRY) : YIELD, TEST WEIGHT AND PROTEIN (CONTINUED)

LINE	VARIETY / PEDIGREE	YIELD				TEST WEIGHT				PROTEIN			
		(BU/AC)				(LB/BU)				(%)			
		2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019
LIMAGR 192	LNR 1751	86.4				62.9				14.2			
MT 1807	VIDA/MO8/3-4	91.0				62.3				12.8			
MT 1809	VIDA/MO 09/3-4	<u>95.3</u>				62.2				13.5			
MT 1811	MT1142/MTHW1150	80.8				63.0				13.4			
MT 1815	MT1206/MT1203	89.0				62.8				13.2			
MT 1818	VIDA/ULEN	91.1				63.4				14.5			
MT 1819	VIDA/ULEN	87.2				63.4				13.8			
MT 1821	VIDA/H0800103L	84.5				64.2				14.4			
MT 1824	MT1206/MT1273	<u>92.0</u>				62.9				13.3			
MT 1826	MT1142/MT1203	82.8				62.0				14.2			
MT 1837	VIDA/MT1219	72.5				62.7				13.6			
MT 1838	MT1206/MT172	87.9				61.7				13.5			
MT 1840	VIDA/LIMAGR1	85.6				64.8				13.5			
MT 1846	MT1053/SD4265	82.8				63.5				14.3			
MT 1853	MT1053/MT1273	86.5				64.0				13.6			
MT 1855	MT1053/MO8/3-4	<u>93.1</u>				63.2				13.5			
MT 1856	MT1007/MT1203	90.8				62.6				13.9			
MT 1857	MT1142/MT1273	<u>96.3</u>				64.0				14.1			
MT 1861	MT1142/MT1264	85.5				63.9				13.3			
MT 1862	MT1142/MT1264	86.3				62.7				13.1			
MT 1863	MT1007/MT1273	89.7				62.5				13.7			
MT 1865	VidaXConan(BC3F2)a2.1.3.6	90.7				62.4				13.4			
MT 1866	VidaXConan(BC3F2)a4.6.8.3	91.2				63.5				13.0			
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	85.1				63.4				13.3			
MT 1868	MT1053/LIMAGR1	89.1				62.1				12.5			
MT 1870	VIDA/H0800103L	84.7				62.9				13.5			
MT 1871	MT1007/TRVERSE	91.3				62.9				12.8			
MT 1872	MT1007/MO 09/3-4	<u>92.0</u>				62.7				13.6			
WB 143	WB 9668	74.7				62.8				16.0			
	MEAN	86.5	70.3	55.8	52.5	62.9	63.3	62.7	62.5	13.7	14.4	14.3	13.8
	C.V.	5.1	5.8	8.7	8.4	0.8	0.6	1.2	1.1	3.3	2.8	2.9	3.9
	PROBABILITY (ENTRY)	<0.001	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	PLSD(0.05)	7.5	8.3	8.0	6.3	0.8	0.8	1.2	1.0	0.8	0.8	0.7	0.8

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2016-2019 ADVANCED SPRING WHEAT NURSERY, SIDNEY (IRRI) : YIELD, TEST WEIGHT AND PROTEIN

LINE	VARIETY / PEDIGREE	YIELD				TEST WEIGHT				PROTEIN			
		(BU/AC)				(LB/BU)				(%)			
		2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019
AGRIPR 141	SY INGMAR	95.5	<u>95.7</u>	<u>94.1</u>	<u>88.0</u>	62.4	63.4	63.7	<u>63.1</u>	15.5	15.5	14.5	14.5
AGRIPR 151	SY Valda	96.6	<u>101.3</u>	<u>99.4</u>	<u>94.1</u>	63.0	63.5	63.3	<u>62.9</u>	14.9	15.1	13.7	13.7
AGRIPR 161	SY Rockford	97.9	<u>97.1</u>	<u>98.6</u>	<u>90.8</u>	60.5	61.4	61.5	<u>60.5</u>	14.8	14.9	13.9	14.0
BZ 92413R	WB GUNNISON	77.4	78.7	79.4	74.7	62.1	62.6	63.1	<u>62.8</u>	14.6	14.8	13.7	13.8
BZ 996434	CORBIN	82.3	80.8	87.2	80.3	61.8	62.5	62.9	<u>62.3</u>	15.7	15.6	<u>14.8</u>	<u>14.8</u>
CI 10003	THATCHER	65.5	68.6	71.9	66.6	60.2	61.0	61.3	<u>60.7</u>	16.4	<u>16.1</u>	<u>14.9</u>	<u>14.9</u>
CI 13596	FORTUNA	68.2	68.7	73.5	68.4	60.7	61.3	61.9	61.4	15.5	<u>15.4</u>	<u>14.6</u>	14.7
ND 695	REEDER	94.6	<u>94.2</u>	<u>95.3</u>	<u>89.1</u>	62.1	62.6	63.0	<u>62.6</u>	15.5	<u>15.7</u>	<u>14.9</u>	<u>15.0</u>
PI 574642	MCNEAL	90.7	88.8	90.9	84.7	61.0	61.6	61.9	61.5	15.7	15.6	14.5	14.5
PI 633974	CHOTEAU	82.7	83.4	85.8	82.1	60.9	61.5	61.8	61.3	15.0	15.1	14.0	14.2
PI 642366	VIDA	97.6	<u>95.2</u>	<u>97.5</u>	<u>88.1</u>	61.9	62.0	62.3	61.4	15.4	15.1	13.8	14.2
PI 660981	DUCLAIR	88.3	88.3	90.7	85.7	60.9	61.7	61.8	61.5	14.8	15.0	13.9	14.0
PI 671855	EGAN	88.2	83.9	84.9	80.1	61.0	61.4	61.7	61.1	15.8	<u>15.9</u>	<u>15.1</u>	<u>15.3</u>
PI 676978	LANNING	97.5	<u>94.3</u>	<u>95.1</u>	<u>89.3</u>	61.0	61.8	62.2	61.7	15.9	<u>16.0</u>	<u>14.8</u>	<u>15.1</u>
PI 679964	NS PRESSER CLP	89.5	84.6	91.4	82.0	60.7	60.8	61.3	60.0	15.1	<u>15.0</u>	13.9	14.2
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	80.7	82.9	86.6	82.1	60.5	61.5	61.9	61.5	16.0	<u>15.8</u>	14.5	14.5
WSCIA	ALUM	83.8	89.5	91.8	84.9	62.6	63.2	63.7	<u>62.6</u>	15.3	15.2	14.1	14.3
LIMAGR 171	LCS REBEL(LNR 13-0594)	90.7	<u>92.3</u>	<u>94.1</u>		63.3	63.9	64.2		15.8	<u>16.0</u>	<u>15.0</u>	
PI 690450	DAGMAR	95.6	<u>94.2</u>	<u>97.0</u>		61.9	62.3	62.7		15.9	<u>16.3</u>	<u>14.9</u>	
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	83.6	87.5	87.7		60.0	60.9	61.0		16.3	<u>16.2</u>	<u>14.9</u>	
WB 171	WB 9590	93.0	<u>93.1</u>	<u>94.8</u>		61.8	62.4	62.7		15.9	<u>16.1</u>	<u>14.9</u>	
WB 173	WB 9719	97.0	<u>99.8</u>	<u>101.2</u>		<u>64.8</u>	<u>65.3</u>	<u>65.7</u>		15.0	15.1	14.2	
MT 1716	MT1274/RB07	89.8	<u>96.2</u>			62.6	63.3			15.5	15.5		
MT 1736	12F5 2124/12SR 37	79.7	85.7			59.7	60.4			15.8	<u>15.7</u>		
MT 1742	MT1274/12F5 827	86.7	87.1			61.6	62.2			15.7	15.4		
MT 1743	MT1274/12F5 827	84.3	87.5			60.1	60.6			15.9	15.4		
MT 1748	12F5 2124/IDO868	92.7	<u>91.2</u>			60.5	61.1			16.0	<u>16.0</u>		
MT 1750	12SR93/12F5 1215	93.6	90.3			62.7	63.3			14.8	15.2		
MT 1756	MT1253/12F5 1215	93.3	<u>91.7</u>			59.6	60.3			15.0	14.9		
MT 1767	12SR225/12F5 827	97.2	89.5			60.7	61.1			15.5	15.5		
MT 1775	12F5 827/12F5 2124	89.8	<u>92.6</u>			60.1	61.1			15.9	15.3		
SYN 181	10S0059-28 (SY McCloud)	92.1	85.7			63.2	63.8			15.8	<u>16.1</u>		
SYN 182	09S0306-24 SS (SY Longmire)	<u>100.0</u>	<u>94.6</u>			62.8	62.9			15.4	15.6		
SYN 183	10S0176-18 CL (SY 611 CL2)	<u>105.3</u>	<u>101.0</u>			63.4	63.9			14.8	15.2		
LIMAGR 191	LNR 1156	<u>98.2</u>				62.9				14.6			

2016-2019 ADVANCED SPRING WHEAT NURSERY, SIDNEY (IRRI) : YIELD, TEST WEIGHT AND PROTEIN (CONTINUED)

LINE	VARIETY / PEDIGREE	YIELD				TEST WEIGHT				PROTEIN			
		(BU/AC)				(LB/BU)				(%)			
		2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019
LIMAGR 192	LNR 1751	95.0				61.8				15.4			
MT 1807	VIDA/MO8/3-4	90.9				61.2				16.0			
MT 1809	VIDA/MO 09/3-4	94.6				60.9				16.1			
MT 1811	MT1142/MTHW1150	87.7				61.8				15.7			
MT 1815	MT1206/MT1203	92.8				61.0				15.4			
MT 1818	VIDA/ULEN	93.6				61.3				16.0			
MT 1819	VIDA/ULEN	98.1				61.9				15.3			
MT 1821	VIDA/H0800103L	73.4				62.1				16.6			
MT 1824	MT1206/MT1273	<u>98.2</u>				61.8				14.7			
MT 1826	MT1142/MT1203	87.6				60.4				16.7			
MT 1837	VIDA/MT1219	81.2				60.3				16.5			
MT 1838	MT1206/MT172	87.9				60.0				15.6			
MT 1840	VIDA/LIMAGR1	86.4				63.1				14.5			
MT 1846	MT1053/SD4265	89.0				62.6				<u>16.9</u>			
MT 1853	MT1053/MT1273	96.1				62.3				15.7			
MT 1855	MT1053/MO8/3-4	93.0				62.0				15.1			
MT 1856	MT1007/MT1203	83.7				60.6				16.6			
MT 1857	MT1142/MT1273	<u>102.0</u>				62.4				14.6			
MT 1861	MT1142/MT1264	91.5				62.8				16.2			
MT 1862	MT1142/MT1264	87.6				60.8				15.3			
MT 1863	MT1007/MT1273	90.3				61.2				16.3			
MT 1865	VidaXConan(BC3F2)a2.1.3.6	82.4				61.3				15.6			
MT 1866	VidaXConan(BC3F2)a4.6.8.3	<u>98.9</u>				62.5				15.4			
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	94.6				62.2				14.9			
MT 1868	MT1053/LIMAGR1	94.4				60.6				14.5			
MT 1870	VIDA/H0800103L	75.4				61.1				15.7			
MT 1871	MT1007/TRVERSE	92.4				61.9				15.5			
MT 1872	MT1007/MO 09/3-4	96.2				61.7				14.9			
WB 143	WB 9668	79.6				61.7				<u>17.4</u>			
	MEAN	89.9	89.3	90.4	83.0	61.6	62.1	62.5	61.7	15.6	15.5	14.4	14.4
	C.V.	4.7	5.7	5.1	6.3	0.9	0.5	0.6	1.1	2.8	2.1	2.5	2.7
	PROBABILITY (ENTRY)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	LSD(0.05)	7.2	10.3	7.6	7.4	0.9	0.7	0.6	0.9	0.7	0.7	0.6	0.6

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

**2016-2019 OVERALL AVERAGE OF HEADING DATE, PLANT HEIGHT AND STEM SOLIDNESS  
FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA (CONTINUED)**

LINE	VARIETY / PEDIGREE	HEADING DATE				PLANT HEIGHT				STEM SOLIDNESS (5-25)			
		(JULIAN)				(INCHES)				BOZEMAN ONLY			
		2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019	2019	2018-2019	2017-2019	2016-2019
AGRIPR 141	SY INGMAR	180.0	176.5	174.1	173.8	30.5	30.2	29.1	29.4	10.0	9.7	9.1	9.0
AGRIPR 151	SY Valda	179.6	176.3	174.0	173.5	29.7	30.3	29.0	29.3	9.7	8.5	7.9	8.1
AGRIPR 161	SY Rockford	182.2	178.6	176.2	175.5	31.3	31.3	30.1	30.2	11.1	9.2	8.3	8.1
BZ 92413R	WB GUNNISON	179.6	176.5	174.1	173.4	29.9	30.2	28.7	28.9	13.6	12.3	11.3	11.4
BZ 996434	CORBIN	178.0	<u>174.7</u>	<u>172.4</u>	<u>171.9</u>	31.0	31.2	30.1	30.4	13.7	12.3	11.2	11.8
CI 10003	THATCHER	183.6	180.9	178.3	177.4	<u>40.3</u>	<u>40.5</u>	<u>38.9</u>	<u>38.5</u>	9.5	9.6	8.7	8.3
CI 13596	FORTUNA	180.2	177.0	174.7	173.9	37.5	37.3	36.2	36.2	15.5	15.6	15.2	15.6
ND 695	REEDER	180.8	177.6	175.3	174.3	32.8	32.8	31.6	31.8	8.8	7.7	7.0	7.3
PI 574642	MCNEAL	181.5	178.8	176.4	175.2	32.3	32.6	31.4	31.4	9.2	8.4	7.7	7.9
PI 633974	CHOTEAU	180.2	177.1	174.7	173.8	30.6	30.6	29.5	29.7	<u>22.0</u>	<u>21.7</u>	<u>22.1</u>	<u>22.1</u>
PI 642366	VIDA	180.8	177.7	175.4	174.6	30.9	31.2	30.0	30.4	12.6	11.5	10.8	11.0
PI 660981	DUCLAIR	177.7	<u>174.6</u>	<u>172.3</u>	<u>171.8</u>	31.1	31.0	30.0	30.4	18.6	19.1	19.2	19.0
PI 671855	EGAN	180.7	178.1	175.6	174.7	31.2	31.7	30.3	30.5	8.7	8.3	7.5	7.7
PI 676978	LANNING	178.2	175.7	173.3	<u>172.3</u>	30.1	30.8	29.3	29.5	8.7	7.2	6.6	7.2
PI 679964	NS PRESSER CLP	182.7	180.4	177.6	176.6	32.8	33.5	32.0	31.9	9.6	8.2	7.8	8.0
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	180.6	177.6	175.1	174.3	30.7	30.8	29.8	29.8	<u>23.1</u>	<u>22.0</u>	<u>22.7</u>	<u>22.8</u>
WSCIA	ALUM	180.4	177.5	175.1	174.3	31.4	31.6	30.4	30.5	11.2	9.8	9.2	9.4
LIMAGR 171	LCS REBEL(LNR 13-0594)	177.7	174.8	172.8		33.3	33.7	32.4		9.8	9.0	8.4	
PI 690450	DAGMAR	178.0	<u>174.5</u>	<u>172.3</u>		31.0	31.5	30.3		14.9	16.1	15.0	
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	<u>176.9</u>	<u>174.3</u>	<u>172.0</u>		31.0	31.1	29.9		16.1	18.3	18.4	
WB 171	WB 9590	178.0	174.8	<u>172.4</u>		26.7	27.5	26.6		9.5	9.5	8.3	
WB 173	WB 9719	181.7	178.6	176.0		29.6	29.6	28.6		9.4	8.2	7.2	
MT 1716	MT1274/RB07	177.4	<u>174.5</u>			31.0	31.3			10.2	9.0		
MT 1736	12F5 2124/12SR 37	181.4	178.3			32.0	32.6			<u>22.6</u>	<u>21.0</u>		
MT 1742	MT1274/12F5 827	<u>177.1</u>	<u>173.9</u>			30.9	31.0			17.7	18.4		
MT 1743	MT1274/12F5 827	180.9	178.2			30.9	31.1			16.1	15.2		
MT 1748	12F5 2124/IDO868	182.8	180.6			35.3	35.3			16.2	16.2		
MT 1750	12SR93/12F5 1215	<u>177.2</u>	<u>174.1</u>			32.4	32.7			13.9	12.2		
MT 1756	MT1253/12F5 1215	178.8	175.5			32.3	32.0			15.7	15.5		
MT 1767	12SR225/12F5 827	177.6	<u>174.4</u>			31.2	30.9			17.6	18.7		
MT 1775	12F5 827/12F5 2124	181.0	177.8			33.6	33.4			13.8	14.0		
SYN 181	10S0059-28 (SY McCloud)	177.6	<u>174.6</u>			30.7	30.6			10.7	9.4		
SYN 182	09S0306-24 SS (SY Longmire)	179.3	176.3			30.1	29.8			19.6	18.7		
SYN 183	10S0176-18 CL (SY 611 CL2)	179.0	175.8			28.7	28.9			10.0	8.8		
LIMAGR 191	LNR 1156	179.2				29.5				9.8			

**2016-2019 OVERALL AVERAGE OF HEADING DATE, PLANT HEIGHT AND STEM SOLIDNESS  
FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA (CONTINUED)**

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)				PLANT HEIGHT (INCHES)				STEM SOLIDNESS (5-25) BOZEMAN ONLY			
		2019	2018- 2019	2017- 2019	2016- 2019	2019	2018- 2019	2017- 2019	2016- 2019	2019	2018- 2019	2017- 2019	2016- 2019
LIMAGR 192	LNR 1751	178.4				31.0				9.9			
MT 1807	VIDA/MO8/3-4	179.2				31.4				14.1			
MT 1809	VIDA/MO 09/3-4	180.4				31.1				11.7			
MT 1811	MT1142/MTHW1150	180.9				33.4				12.9			
MT 1815	MT1206/MT1203	181.7				32.5				<u>20.8</u>			
MT 1818	VIDA/ULEN	180.7				31.6				10.7			
MT 1819	VIDA/ULEN	179.9				31.7				11.8			
MT 1821	VIDA/H0800103L	181.4				32.5				12.0			
MT 1824	MT1206/MT1273	179.2				30.9				14.8			
MT 1826	MT1142/MT1203	179.6				30.5				15.3			
MT 1837	VIDA/MT1219	180.2				28.9				17.8			
MT 1838	MT1206/MT172	178.2				30.3				17.1			
MT 1840	VIDA/LIMAGR1	179.8				30.2				18.0			
MT 1846	MT1053/SD4265	179.5				32.8				11.2			
MT 1853	MT1053/MT1273	180.3				30.9				18.7			
MT 1855	MT1053/MO8/3-4	182.0				34.5				16.7			
MT 1856	MT1007/MT1203	180.4				32.2				15.3			
MT 1857	MT1142/MT1273	180.9				32.0				10.3			
MT 1861	MT1142/MT1264	179.6				31.2				16.4			
MT 1862	MT1142/MT1264	178.6				30.6				<u>20.7</u>			
MT 1863	MT1007/MT1273	179.5				30.1				16.4			
MT 1865	VidaXConan(BC3F2)a2.1.3.6	181.5				32.4				11.0			
MT 1866	VidaXConan(BC3F2)a4.6.8.3	180.5				32.2				10.8			
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	179.8				32.2				11.3			
MT 1868	MT1053/LIMAGR1	180.4				30.7				14.0			
MT 1870	VIDA/H0800103L	178.1				30.7				16.3			
MT 1871	MT1007/TRVERSE	180.5				31.4				18.5			
MT 1872	MT1007/MO 09/3-4	177.8				31.1				15.3			
WB 143	WB 9668	176.4				25.6				11.0			
	AVERAGE	179.7	176.7	174.5	174.2	31.4	31.8	30.6	31.1	13.9	12.9	11.4	11.4
	C.V.	0.5	0.5	0.4	0.3	3.2	3.5	3.2	3.4	13.5	10.4	11.4	8.8
	F-VALUE(LINE)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	LSD(0.05)	1.0	0.9	0.7	0.6	1.1	1.1	1.0	1.0	3.0	2.7	2.1	1.4

1) Underlined : highest value, Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2) Kalispell's 2018 data was excluded, 3) Huntley's 2019 data was excluded due to hail damage

2019 OVERALL AGRONOMIC SUMMARY FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA

LINE	VARIETY / PEDIGREE	YIELD		TEST		PROTEIN		HEADING		PLANT	
		(BU/AC)	RANK	WEIGHT (LB/BU)	RANK	(%)	RANK	DATE (JULIAN)	RANK	HEIGHT (IN.)	RANK
AGRIPR 151	SY Valda	<u>68.5</u>	19	61.3	17	14.4	43	179.6	27	29.7	58
AGRIPR 161	SY Rockford	<u>69.7</u>	12	59.7	55	14.4	50	182.2	61	31.3	27
AGRIPR 141	SY INGMAR	66.7	36	61.6	13	15.2	9	180.0	34	30.5	50
BZ 92413R	WB GUNNISON	62.5	59	61.6	11	14.0	63	179.6	30	29.9	57
BZ 996434	CORBIN	62.9	58	61.2	19	14.8	27	178.0	13	31.0	36
CI 10003	THATCHER	51.0	64	58.3	64	15.1	14	183.6	64	40.3	1
CI 13596	FORTUNA	56.3	63	60.3	47	14.5	38	180.2	37	37.5	2
ND 695	REEDER	64.1	52	61.4	14	14.8	24	180.8	48	32.8	8
PI 574642	MCNEAL	63.8	53	60.4	42	14.4	46	181.5	56	32.3	15
PI 633974	CHOTEAU	63.4	55	60.2	48	14.8	22	180.2	35	30.6	48
PI 642366	VIDA	<u>69.8</u>	10	60.7	34	14.1	60	180.8	49	30.9	41
PI 660981	DUCLAIR	<u>67.5</u>	28	60.3	45	14.8	23	177.7	8	31.1	32
PI 671855	EGAN	61.4	60	59.8	54	<u>15.9</u>	2	180.7	47	31.2	28
PI 676978	LANNING	<u>67.2</u>	29	61.1	28	15.3	8	178.2	15	30.1	55
PI 679964	NS PRESSER CLP	<u>69.3</u>	14	60.0	51	14.2	58	182.7	62	32.8	10
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	65.4	46	60.4	43	14.9	19	180.6	45	30.7	47
WSCIA	ALUM	64.5	50	61.2	18	14.4	51	180.4	42	31.4	25
PI 690450	DAGMAR	<u>68.7</u>	18	61.3	16	14.8	25	178.0	12	31.0	37
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	65.4	47	59.4	59	15.6	4	<u>176.9</u>	2	31.0	34
MT 1716	MT1274/RB07	65.7	45	61.2	20	14.7	30	177.4	5	31.0	38
MT 1736	12F5 2124/12SR 37	66.1	40	58.7	63	14.6	36	181.4	54	32.0	20
MT 1742	MT1274/12F5 827	66.0	42	60.9	31	14.5	42	<u>177.1</u>	3	30.9	42
MT 1743	MT1274/12F5 827	<u>67.8</u>	24	59.5	57	14.1	59	180.9	51	30.9	39
MT 1748	12F5 2124/IDO868	<u>67.6</u>	27	59.4	61	15.1	13	182.8	63	35.3	3
MT 1750	12SR93/12F5 1215	<u>69.8</u>	9	61.7	10	14.3	52	<u>177.2</u>	4	32.4	13
MT 1767	12SR225/12F5 827	<u>69.9</u>	7	59.4	60	14.7	29	177.6	7	31.2	29
MT 1775	12F5 827/12F5 2124	<u>68.8</u>	17	60.0	52	14.7	33	181.0	53	33.6	5
MT 1807	VIDA/MO8/3-4	<u>68.9</u>	15	60.6	39	14.5	41	179.2	21	31.4	26
MT 1809	VIDA/M0 09/3-4	<u>72.0</u>	1	60.1	49	14.8	28	180.4	39	31.1	33
MT 1811	MT1142/MTHW1150	63.2	56	61.1	27	14.4	44	180.9	52	33.4	6
MT 1815	MT1206/MT1203	<u>69.7</u>	11	60.6	40	14.7	32	181.7	58	32.5	12
MT 1818	VIDA/ULEN	<u>67.8</u>	25	60.8	33	15.4	5	180.7	46	31.6	23
MT 1819	VIDA/ULEN	64.3	51	60.7	36	15.0	15	179.9	33	31.7	22
MT 1821	VIDA/H0800103L	63.7	54	62.3	6	15.0	16	181.4	55	32.5	11
MT 1826	MT1142/MT1203	66.7	34	59.2	62	15.2	10	179.6	28	30.5	51

2019 OVERALL AGRONOMIC SUMMARY FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA (Cont.)

LINE	VARIETY / PEDIGREE	YIELD		TEST		PROTEIN		HEADING		PLANT	
		(BU/AC)	RANK	WEIGHT (LB/BU)	RANK	(%)	RANK	DATE (JULIAN)	RANK	HEIGHT (IN.)	RANK
MT 1837	VIDA/MT1219	60.5	61	60.6	38	15.1	11	180.2	36	28.9	61
MT 1838	MT1206/MT172	65.3	48	59.6	56	14.3	54	178.2	16	30.3	52
MT 1840	VIDA/LIMAGR1	64.6	49	62.6	3	14.0	62	179.8	31	30.2	53
MT 1846	MT1053/SD4265	<u>66.9</u>	33	61.4	15	15.3	6	179.5	26	32.8	9
MT 1853	MT1053/MT1273	<u>68.4</u>	20	62.0	9	14.4	47	180.3	38	30.9	40
MT 1855	MT1053/MO8/3-4	<u>71.5</u>	3	61.0	29	14.5	39	182.0	60	34.5	4
MT 1856	MT1007/MT1203	65.9	44	60.4	44	15.3	7	180.4	40	32.2	19
MT 1857	MT1142/MT1273	<u>70.7</u>	5	61.6	12	14.7	31	180.9	50	32.0	21
MT 1861	MT1142/MT1264	66.7	35	62.2	7	14.9	21	179.6	29	31.2	30
MT 1862	MT1142/MT1264	<u>68.2</u>	22	60.6	37	14.5	40	178.6	18	30.6	49
MT 1863	MT1007/MT1273	66.4	38	60.7	35	14.9	20	179.5	25	30.1	56
MT 1865	VidaXConan(BC3F2)a2.1.3.6	<u>67.1</u>	30	59.9	53	14.4	48	181.5	57	32.4	14
MT 1866	VidaXConan(BC3F2)a4.6.8.3	<u>71.0</u>	4	61.2	21	14.3	55	180.5	44	32.2	17
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	<u>67.0</u>	31	61.0	30	15.0	17	179.8	32	32.2	18
MT 1868	MT1053/LIMAGR1	<u>72.0</u>	2	60.3	46	13.6	64	180.4	41	30.7	45
MT 1870	VIDA/H0800103L	66.1	41	61.1	26	14.2	57	178.1	14	30.7	44
MT 1872	MT1007/M0 09/3-4	<u>70.3</u>	6	60.5	41	14.4	45	177.8	10	31.1	31
SYN 181	10S0059-28 (SY McCloud)	63.0	57	62.3	4	15.6	3	177.6	6	30.7	46
SYN 182	09S0306-24 SS (SY Longmire)	<u>67.8</u>	26	62.2	8	14.8	26	179.3	24	30.1	54
SYN 183	10S0176-18 CL (SY 611 CL2)	66.3	39	62.8	2	14.6	37	179.0	20	28.7	62
WB 171	WB 9590	<u>67.0</u>	32	61.2	22	15.1	12	178.0	11	26.7	63
WB 173	WB 9719	<u>69.5</u>	13	<u>64.1</u>	1	14.1	61	181.7	59	29.6	59
WB 143	WB 9668	60.0	62	61.1	24	<u>16.3</u>	1	<u>176.4</u>	1	25.6	64
LIMAGR 171	LCS REBEL(LNR 13-0594)	66.5	37	62.3	5	14.9	18	177.7	9	33.3	7
LIMAGR 191	LNR 1156	66.0	43	61.2	23	14.4	49	179.2	22	29.5	60
LIMAGR 192	LNR 1751	<u>69.9</u>	8	61.1	25	14.7	34	178.4	17	31.0	35
MT 1756	MT1253/12F5 1215	<u>68.3</u>	21	59.4	58	14.3	53	178.8	19	32.3	16
MT 1824	MT1206/MT1273	<u>68.1</u>	23	60.0	50	14.6	35	179.2	23	30.9	43
MT 1871	MT1007/TRVERSE	<u>68.9</u>	16	60.9	32	14.3	56	180.5	43	31.4	24
AVERAGE		66.5		60.8		14.7		179.7		31.4	
C.V.		7.4		1.1		3.0		0.5		3.2	
PROBABILITY(LINE)		<0.001		<0.001		<0.001		<0.001		<0.001	
LSD(0.05)		5.2		0.7		0.5		1.0		1.1	

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 GRAIN YIELD (BU/AC) SUMMARY FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA

LINE	VARIETY / PEDIGREE	BOZEMAN	KALISPELL	MOCCASIN	CONRAD	HAVRE	SIDNEY (DRY)	SIDNEY (IRRI)	AVG.	RANK
AGRIPR 151	SY Valda	<u>92.7</u>	<u>54.0</u>	49.5	50.1	47.5	88.9	96.6	<u>68.5</u>	19
AGRIPR 161	SY Rockford	<u>95.0</u>	44.1	<u>61.4</u>	45.3	45.2	<u>98.9</u>	97.9	<u>69.7</u>	12
AGRIPR 141	SY INGMAR	89.6	45.8	52.8	53.7	44.6	84.7	95.5	66.7	36
BZ 92413R	WB GUNNISON	77.4	45.2	53.2	<u>58.1</u>	<u>52.6</u>	73.5	77.4	62.5	59
BZ 996434	CORBIN	83.1	43.5	53.2	51.6	45.6	80.8	82.3	62.9	58
CI 10003	THATCHER	70.5	43.9	27.5	35.3	37.6	76.6	65.5	51.0	64
CI 13596	FORTUNA	78.5	38.3	43.1	54.0	41.2	70.8	68.2	56.3	63
ND 695	REEDER	87.1	46.7	43.8	46.2	42.3	88.1	94.6	64.1	52
PI 574642	MCNEAL	74.8	49.9	45.9	50.9	47.0	87.5	90.7	63.8	53
PI 633974	CHOTEAU	82.6	38.8	50.3	53.0	44.5	<u>91.8</u>	82.7	63.4	55
PI 642366	VIDA	<u>91.9</u>	49.0	<u>53.5</u>	<u>58.1</u>	<u>52.1</u>	86.3	97.6	<u>69.8</u>	10
PI 660981	DUCLAIR	<u>94.0</u>	52.2	47.6	54.2	49.2	86.9	88.3	<u>67.5</u>	28
PI 671855	EGAN	81.6	42.9	47.1	46.3	44.1	79.7	88.2	61.4	60
PI 676978	LANNING	89.4	46.1	<u>59.1</u>	49.3	44.5	84.3	97.5	<u>67.2</u>	29
PI 679964	NS PRESSER CLP	89.1	<u>59.6</u>	51.6	57.1	46.8	<u>91.7</u>	89.5	<u>69.3</u>	14
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	89.5	42.9	47.9	<u>59.4</u>	<u>51.4</u>	86.2	80.7	65.4	46
WSCIA	ALUM	89.5	50.1	42.1	46.7	<u>50.0</u>	89.1	83.8	64.5	50
PI 690450	DAGMAR	89.1	50.1	46.4	<u>66.7</u>	<u>50.1</u>	82.8	95.6	<u>68.7</u>	18
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	<u>91.1</u>	46.9	53.3	52.3	46.7	83.6	83.6	65.4	47
MT 1716	MT1274/RB07	89.9	47.0	43.0	47.5	<u>51.0</u>	91.4	89.8	65.7	45
MT 1736	12F5 2124/12SR 37	87.4	52.4	51.7	<u>62.8</u>	48.4	80.5	79.7	66.1	40
MT 1742	MT1274/12F5 827	90.8	47.7	49.8	53.2	<u>49.7</u>	84.3	86.7	66.0	42
MT 1743	MT1274/12F5 827	86.4	51.2	45.0	<u>65.3</u>	<u>50.1</u>	<u>92.6</u>	84.3	<u>67.8</u>	24
MT 1748	12F5 2124/IDO868	88.5	48.2	48.5	<u>61.2</u>	<u>49.6</u>	84.4	92.7	<u>67.6</u>	27
MT 1750	12SR93/12F5 1215	<u>91.5</u>	49.9	<u>58.1</u>	54.2	<u>52.0</u>	89.5	93.6	<u>69.8</u>	9
MT 1767	12SR225/12F5 827	<u>96.4</u>	46.5	52.3	55.4	<u>51.1</u>	90.6	97.2	<u>69.9</u>	7
MT 1775	12F5 827/12F5 2124	<u>92.7</u>	<u>54.8</u>	53.3	<u>58.1</u>	46.2	86.9	89.8	<u>68.8</u>	17
MT 1807	VIDA/MO8/3-4	<u>94.9</u>	49.9	51.0	54.6	<u>49.7</u>	91.0	90.9	<u>68.9</u>	15
MT 1809	VIDA/M0 09/3-4	<u>93.3</u>	47.5	<u>59.2</u>	<u>62.2</u>	<u>52.1</u>	<u>95.3</u>	94.6	<u>72.0</u>	1
MT 1811	MT1142/MTHW1150	73.9	<u>57.8</u>	46.1	44.2	<u>51.7</u>	80.8	87.7	63.2	56
MT 1815	MT1206/MT1203	88.7	51.2	51.8	<u>62.3</u>	<u>52.4</u>	89.0	92.8	<u>69.7</u>	11
MT 1818	VIDA/ULEN	<u>98.3</u>	42.7	49.8	50.6	48.7	91.1	93.6	<u>67.8</u>	25
MT 1819	VIDA/ULEN	<u>99.7</u>	41.4	42.9	39.7	41.4	87.2	98.1	64.3	51
MT 1821	VIDA/H0800103L	84.5	43.5	<u>54.9</u>	54.9	<u>50.2</u>	84.5	73.4	63.7	54
MT 1826	MT1142/MT1203	<u>91.8</u>	46.3	51.1	<u>58.7</u>	48.8	82.8	87.6	66.7	34

2019 GRAIN YIELD (BU/AC) SUMMARY FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA (cont.)

LINE	VARIETY / PEDIGREE	BOZEMAN	KALISPELL	MOCCASIN	CONRAD	HAVRE	SIDNEY (DRY)	SIDNEY (IRRI)	AVG.	RANK
MT 1837	VIDA/MT1219	86.0	39.1	47.6	52.7	44.7	72.5	81.2	60.5	61
MT 1838	MT1206/MT172	85.2	41.4	49.1	54.4	<u>51.4</u>	87.9	87.9	65.3	48
MT 1840	VIDA/LIMAGR1	83.3	43.2	47.5	56.0	<u>50.1</u>	85.6	86.4	64.6	49
MT 1846	MT1053/SD4265	89.5	49.7	<u>54.6</u>	57.1	45.8	82.8	89.0	<u>66.9</u>	33
MT 1853	MT1053/MT1273	83.3	48.0	49.8	<u>62.4</u>	<u>52.7</u>	86.5	96.1	<u>68.4</u>	20
MT 1855	MT1053/MO8/3-4	<u>96.9</u>	<u>57.2</u>	53.2	57.2	<u>49.7</u>	<u>93.1</u>	93.0	<u>71.5</u>	3
MT 1856	MT1007/MT1203	85.8	45.2	49.2	<u>58.7</u>	47.6	90.8	83.7	65.9	44
MT 1857	MT1142/MT1273	82.3	<u>55.5</u>	45.2	<u>61.0</u>	<u>52.6</u>	<u>96.3</u>	<u>102.0</u>	<u>70.7</u>	5
MT 1861	MT1142/MT1264	86.9	48.4	44.2	57.4	<u>53.1</u>	85.5	91.5	66.7	35
MT 1862	MT1142/MT1264	90.1	44.4	<u>54.4</u>	<u>62.9</u>	<u>51.8</u>	86.3	87.6	<u>68.2</u>	22
MT 1863	MT1007/MT1273	87.6	41.3	51.9	55.5	48.2	89.7	90.3	66.4	38
MT 1865	VidaXConan(BC3F2)a2.1.3.6	87.4	48.9	49.6	<u>59.8</u>	<u>50.9</u>	90.7	82.4	<u>67.1</u>	30
MT 1866	VidaXConan(BC3F2)a4.6.8.3	<u>94.2</u>	50.1	49.8	<u>63.5</u>	<u>49.5</u>	91.2	<u>98.9</u>	<u>71.0</u>	4
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	87.1	48.2	51.3	55.8	46.9	85.1	94.6	<u>67.0</u>	31
MT 1868	MT1053/LIMAGR1	<u>95.1</u>	<u>63.7</u>	47.6	<u>61.3</u>	<u>52.9</u>	89.1	94.4	<u>72.0</u>	2
MT 1870	VIDA/H0800103L	<u>92.7</u>	<u>54.2</u>	51.7	55.8	48.4	84.7	75.4	66.1	41
MT 1872	MT1007/M0 09/3-4	<u>96.0</u>	47.1	51.2	55.4	<u>54.4</u>	<u>92.0</u>	96.2	<u>70.3</u>	6
SYN 181	10S0059-28 (SY McCloud)	85.6	45.3	46.7	51.8	41.4	78.4	92.1	63.0	57
SYN 182	09S0306-24 SS (SY Longmire)	87.2	45.5	48.6	<u>59.7</u>	<u>50.4</u>	83.0	<u>100.0</u>	<u>67.8</u>	26
SYN 183	10S0176-18 CL (SY 611 CL2)	79.4	48.9	47.8	51.0	46.1	85.6	<u>105.3</u>	66.3	39
WB 171	WB 9590	<u>92.8</u>	44.4	<u>56.9</u>	50.6	45.9	85.4	93.0	<u>67.0</u>	32
WB 173	WB 9719	<u>94.3</u>	38.8	44.5	<u>64.2</u>	<u>49.6</u>	<u>97.8</u>	97.0	<u>69.5</u>	13
WB 143	WB 9668	84.1	39.3	45.8	55.1	41.2	74.7	79.6	60.0	62
LIMAGR 171	LCS REBEL(LNR 13-0594)	<u>94.2</u>	<u>56.4</u>	49.3	46.5	44.0	84.2	90.7	66.5	37
LIMAGR 191	LNR 1156	87.8	48.4	46.1	47.9	48.4	85.0	<u>98.2</u>	66.0	43
LIMAGR 192	LNR 1751	89.3	<u>58.3</u>	<u>61.1</u>	53.9	45.0	86.4	95.0	<u>69.9</u>	8
MT 1756	MT1253/12F5 1215	84.9	46.6	52.5	56.3	<u>53.1</u>	91.4	93.3	<u>68.3</u>	21
MT 1824	MT1206/MT1273	<u>91.9</u>	43.0	42.9	55.5	<u>53.3</u>	<u>92.0</u>	<u>98.2</u>	<u>68.1</u>	23
MT 1871	MT1007/TRVERSE	86.3	49.3	47.8	<u>63.3</u>	<u>51.6</u>	91.3	92.4	<u>68.9</u>	16
AVERAGE		88.3	47.8	49.6	54.9	48.4	86.5	89.9	66.5	
C.V.		5.8	12.7	9.5	9.5	6.2	5.1	4.7	7.4	
PROBABILITY(LINE)		<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
LSD(0.05)		8.8	10.5	8.0	9.0	5.1	7.5	7.2	5.2	
LATTICE RE(%) <sup>1)</sup>		130.6	166.2	113.9	163.3	118.1	128.6	109.3	-	

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

2019 GRAIN TEST WEIGHT ( LB/BU) SUMMARY FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA

LINE	VARIETY / PEDIGREE	BOZEMAN	KALISPELL	MOCCASIN	CONRAD	HAVRE	SIDNEY (DRY)	SIDNEY (IRRI)	AVG.	RANK
AGRIPR 151	SY Valda	60.6	60.5	59.5	62.0	59.9	63.3	63.0	61.3	17
AGRIPR 161	SY Rockford	58.6	59.0	59.7	59.7	57.9	62.2	60.5	59.7	55
AGRIPR 141	SY INGMAR	60.9	62.0	60.4	61.4	60.6	63.2	62.4	61.6	13
BZ 92413R	WB GUNNISON	61.5	61.6	59.7	62.7	60.2	63.4	62.1	61.6	11
BZ 996434	CORBIN	59.9	61.1	60.1	62.9	59.9	62.7	61.8	61.2	19
CI 10003	THATCHER	59.8	60.1	55.0	57.7	54.1	61.0	60.2	58.3	64
CI 13596	FORTUNA	59.7	60.0	59.1	62.1	58.0	62.2	60.7	60.3	47
ND 695	REEDER	60.9	61.5	60.6	61.9	59.7	63.4	62.1	61.4	14
PI 574642	MCNEAL	59.7	60.5	59.2	61.2	58.5	62.9	61.0	60.4	42
PI 633974	CHOTEAU	58.7	59.8	60.4	60.7	58.8	62.3	60.9	60.2	48
PI 642366	VIDA	59.6	60.5	59.3	61.9	59.4	62.5	61.9	60.7	34
PI 660981	DUCLAIR	59.4	60.3	60.0	60.9	58.6	62.3	60.9	60.3	45
PI 671855	EGAN	59.5	59.9	58.7	60.1	57.2	62.1	61.0	59.8	54
PI 676978	LANNING	60.3	60.9	61.2	61.5	59.9	62.8	61.0	61.1	28
PI 679964	NS PRESSER CLP	58.7	60.7	57.9	61.5	58.4	62.0	60.7	60.0	51
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	58.8	59.8	61.1	61.3	58.8	62.5	60.5	60.4	43
WSCIA	ALUM	62.3	62.1	58.0	60.4	59.5	63.6	62.6	61.2	18
PI 690450	DAGMAR	60.1	60.8	61.0	62.7	59.3	63.2	61.9	61.3	16
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	58.3	59.2	58.8	59.6	58.5	61.4	60.0	59.4	59
MT 1716	MT1274/RB07	59.9	60.0	60.6	62.3	60.0	63.0	62.6	61.2	20
MT 1736	12F5 2124/12SR 37	56.9	58.0	57.5	60.6	57.5	61.0	59.7	58.7	63
MT 1742	MT1274/12F5 827	59.2	60.2	61.0	62.3	59.3	63.0	61.6	60.9	31
MT 1743	MT1274/12F5 827	58.4	58.6	59.4	61.1	57.4	61.8	60.1	59.5	57
MT 1748	12F5 2124/IDO868	59.4	59.3	57.1	59.9	57.4	62.0	60.5	59.4	61
MT 1750	12SR93/12F5 1215	60.2	61.1	61.1	63.3	60.0	63.6	62.7	61.7	10
MT 1767	12SR225/12F5 827	57.8	59.2	58.0	60.2	57.9	61.9	60.7	59.4	60
MT 1775	12F5 827/12F5 2124	59.1	60.5	59.0	61.2	57.9	61.9	60.1	60.0	52
MT 1807	VIDA/MO8/3-4	58.9	60.9	60.1	61.2	59.5	62.3	61.2	60.6	39
MT 1809	VIDA/MO 09/3-4	58.8	59.9	59.4	61.4	58.4	62.2	60.9	60.1	49
MT 1811	MT1142/MTHW1150	59.8	61.5	60.0	61.5	60.1	63.0	61.8	61.1	27
MT 1815	MT1206/MT1203	59.9	60.7	58.9	61.4	59.2	62.8	61.0	60.6	40
MT 1818	VIDA/ULEN	60.8	61.3	59.2	61.4	58.5	63.4	61.3	60.8	33
MT 1819	VIDA/ULEN	60.3	61.0	60.6	58.7	58.8	63.4	61.9	60.7	36
MT 1821	VIDA/H0800103L	62.2	62.3	<u>62.1</u>	62.5	60.8	64.2	62.1	62.3	6
MT 1826	MT1142/MT1203	57.4	58.1	59.6	60.7	56.3	62.0	60.4	59.2	62

2019 GRAIN TEST WEIGHT ( LB/BU) SUMMARY FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA(cont.)

LINE	VARIETY / PEDIGREE	BOZEMAN	KALISPELL	MOCCASIN	CONRAD	HAVRE	SIDNEY (DRY)	SIDNEY (IRRI)	AVG.	RANK
MT 1837	VIDA/MT1219	59.5	60.6	60.0	62.6	58.6	62.7	60.3	60.6	38
MT 1838	MT1206/MT172	58.3	59.5	59.8	59.4	58.3	61.7	60.0	59.6	56
MT 1840	VIDA/LIMAGR1	61.4	62.6	<u>61.5</u>	63.8	60.9	64.8	63.1	62.6	3
MT 1846	MT1053/SD4265	61.0	61.7	60.2	61.6	59.4	63.5	62.6	61.4	15
MT 1853	MT1053/MT1273	60.7	62.1	61.0	63.5	60.7	64.0	62.3	62.0	9
MT 1855	MT1053/MO8/3-4	60.6	61.9	58.8	62.2	58.6	63.2	62.0	61.0	29
MT 1856	MT1007/MT1203	60.0	59.8	60.4	61.2	58.2	62.6	60.6	60.4	44
MT 1857	MT1142/MT1273	61.1	61.7	60.0	62.5	59.5	64.0	62.4	61.6	12
MT 1861	MT1142/MT1264	60.5	61.9	<u>61.9</u>	63.4	<u>61.2</u>	63.9	62.8	62.2	7
MT 1862	MT1142/MT1264	59.7	60.0	60.5	61.6	59.1	62.7	60.8	60.6	37
MT 1863	MT1007/MT1273	59.8	59.9	60.8	61.6	59.0	62.5	61.2	60.7	35
MT 1865	VidaXConan(BC3F2)a2.1.3.6	59.2	59.8	57.1	61.2	58.2	62.4	61.3	59.9	53
MT 1866	VidaXConan(BC3F2)a4.6.8.3	60.6	61.0	59.2	62.0	59.6	63.5	62.5	61.2	21
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	60.2	61.1	59.6	61.4	59.3	63.4	62.2	61.0	30
MT 1868	MT1053/LIMAGR1	59.6	61.3	58.2	61.6	58.8	62.1	60.6	60.3	46
MT 1870	VIDA/H0800103L	60.3	61.4	61.1	61.3	59.8	62.9	61.1	61.1	26
MT 1872	MT1007/M0 09/3-4	60.3	60.7	57.5	61.0	59.3	62.7	61.7	60.5	41
SYN 181	10S0059-28 (SY McCloud)	61.0	61.9	<u>62.4</u>	63.3	60.5	64.1	63.2	62.3	4
SYN 182	09S0306-24 SS (SY Longmire)	61.7	62.0	<u>61.5</u>	62.1	60.8	64.5	62.8	62.2	8
SYN 183	10S0176-18 CL (SY 611 CL2)	61.5	63.1	<u>62.5</u>	63.4	<u>61.1</u>	64.8	63.4	62.8	2
WB 171	WB 9590	59.8	60.3	60.4	62.4	60.3	63.3	61.8	61.2	22
WB 173	WB 9719	<u>64.2</u>	<u>63.6</u>	<u>62.6</u>	<u>65.2</u>	<u>61.6</u>	<u>66.4</u>	<u>64.8</u>	<u>64.1</u>	1
WB 143	WB 9668	59.4	60.3	61.4	62.2	60.2	62.8	61.7	61.1	24
LIMAGR 171	LCS REBEL(LNR 13-0594)	61.4	62.7	61.1	<u>63.9</u>	59.8	64.2	63.3	62.3	5
LIMAGR 191	LNR 1156	60.2	60.4	59.7	62.0	59.8	63.3	62.9	61.2	23
LIMAGR 192	LNR 1751	59.4	61.4	60.5	62.9	59.1	62.9	61.8	61.1	25
MT 1756	MT1253/12F5 1215	58.5	59.2	58.8	60.2	58.1	61.5	59.6	59.4	58
MT 1824	MT1206/MT1273	59.3	59.2	58.0	60.4	58.7	62.9	61.8	60.0	50
MT 1871	MT1007/TRVERSE	60.4	60.4	59.8	61.8	58.9	62.9	61.9	60.9	32
AVERAGE		59.9	60.7	59.8	61.6	59.1	62.9	61.6	60.8	
C.V.		1REP	0.5	1.2	1.3	0.6	0.8	0.9	1.1	
PROBABILITY(LINE)		1REP	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
LSD(0.05)		1REP	0.5	1.2	1.4	0.6	0.8	0.9	0.7	
LATTICE RE(%) <sup>1)</sup>		1REP	101.1	150.2	198.4	124.2	87.7	89.4	-	

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

2019 HEADING DATE (175=JUNE 24) SUMMARY FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA

LINE	VARIETY / PEDIGREE	BOZEMAN	KALISPELL	MOCCASIN	CONRAD	HAVRE	SIDNEY (DRY)	SIDNEY (IRRI)	AVG.	RANK
AGRIPR 151	SY Valda	188.9	<u>169.7</u>	183.0	181.0	176.5	175.0	183.0	179.6	27
AGRIPR 161	SY Rockford	193.3	175.0	187.3	182.7	177.8	175.7	183.7	182.2	61
AGRIPR 141	SY INGMAR	191.1	<u>170.3</u>	182.7	181.0	176.6	175.0	183.0	180.0	34
BZ 92413R	WB GUNNISON	189.5	<u>169.7</u>	183.3	180.3	177.2	174.0	183.3	179.6	30
BZ 996434	CORBIN	187.9	<u>169.0</u>	<u>181.3</u>	180.0	175.2	171.7	181.0	178.0	13
CI 10003	THATCHER	194.4	175.7	186.7	184.3	179.4	178.7	186.0	183.6	64
CI 13596	FORTUNA	192.5	<u>170.3</u>	182.7	182.0	178.6	175.3	180.0	180.2	37
ND 695	REEDER	193.5	175.0	183.7	182.0	174.9	173.3	183.0	180.8	48
PI 574642	MCNEAL	193.1	175.0	184.3	181.3	176.2	177.3	183.3	181.5	56
PI 633974	CHOTEAU	191.0	173.7	182.7	180.3	176.8	175.0	181.7	180.2	35
PI 642366	VIDA	193.1	172.0	183.7	181.3	177.2	175.0	183.3	180.8	49
PI 660981	DUCLAIR	188.9	<u>169.0</u>	<u>181.3</u>	179.0	175.0	<u>171.3</u>	<u>179.3</u>	177.7	8
PI 671855	EGAN	192.8	173.7	183.3	180.3	176.4	176.0	182.7	180.7	47
PI 676978	LANNING	190.2	<u>171.0</u>	<u>180.0</u>	180.0	<u>173.6</u>	<u>171.3</u>	181.0	178.2	15
PI 679964	NS PRESSER CLP	194.4	175.0	184.7	183.3	178.6	178.3	184.3	182.7	62
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	191.9	172.3	182.7	181.7	176.7	175.3	183.3	180.6	45
WSCIA	ALUM	193.0	171.7	183.3	181.0	176.7	175.3	182.0	180.4	42
PI 690450	DAGMAR	188.5	<u>169.7</u>	<u>181.7</u>	179.3	174.3	172.3	180.0	178.0	12
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	<u>187.5</u>	<u>169.7</u>	<u>181.7</u>	<u>177.7</u>	<u>172.6</u>	<u>171.0</u>	<u>178.3</u>	<u>176.9</u>	2
MT 1716	MT1274/RB07	188.3	<u>170.3</u>	<u>181.0</u>	178.0	<u>173.6</u>	<u>171.3</u>	<u>179.3</u>	177.4	5
MT 1736	12F5 2124/12SR 37	192.4	173.7	183.0	182.0	178.4	176.7	183.3	181.4	54
MT 1742	MT1274/12F5 827	187.8	<u>169.7</u>	<u>181.0</u>	<u>177.7</u>	<u>174.0</u>	<u>171.3</u>	<u>178.3</u>	<u>177.1</u>	3
MT 1743	MT1274/12F5 827	192.5	172.3	182.3	182.0	178.5	175.7	183.3	180.9	51
MT 1748	12F5 2124/IDO868	194.1	177.0	183.7	183.3	179.7	177.7	184.3	182.8	63
MT 1750	12SR93/12F5 1215	188.0	<u>169.0</u>	<u>180.0</u>	180.0	<u>173.8</u>	171.7	<u>178.0</u>	<u>177.2</u>	4
MT 1767	12SR225/12F5 827	187.7	<u>169.0</u>	182.3	179.3	<u>172.8</u>	172.0	180.3	177.6	7
MT 1775	12F5 827/12F5 2124	191.8	172.3	183.3	182.3	178.2	176.7	182.7	181.0	53
MT 1807	VIDA/MO8/3-4	191.5	172.3	<u>182.0</u>	180.0	175.2	172.0	181.7	179.2	21
MT 1809	VIDA/MO 09/3-4	192.4	<u>170.7</u>	183.7	181.3	177.4	175.0	182.0	180.4	39
MT 1811	MT1142/MTHW1150	193.1	173.0	183.3	181.7	176.8	175.0	183.7	180.9	52
MT 1815	MT1206/MT1203	193.4	175.7	184.3	182.3	177.0	176.0	183.3	181.7	58
MT 1818	VIDA/ULEN	192.5	172.3	183.7	180.7	177.2	175.0	183.7	180.7	46
MT 1819	VIDA/ULEN	190.2	172.3	183.3	181.0	175.9	173.3	183.0	179.9	33
MT 1821	VIDA/H0800103L	193.5	173.7	183.7	182.3	177.5	175.7	183.3	181.4	55
MT 1826	MT1142/MT1203	189.8	<u>171.0</u>	182.7	180.7	175.7	175.0	182.3	179.6	28

2019 HEADING DATE(175=JUNE 24)SUMMARY FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA(cont

LINE	VARIETY / PEDIGREE	BOZEMAN	KALISPELL	MOCCASIN	CONRAD	HAVRE	SIDNEY (DRY)	SIDNEY (IRRI)	AVG.	RANK
MT 1837	VIDA/MT1219	190.1	173.7	183.3	180.7	176.7	174.0	182.7	180.2	36
MT 1838	MT1206/MT172	189.1	<u>169.7</u>	182.7	180.0	<u>173.2</u>	172.0	180.7	178.2	16
MT 1840	VIDA/LIMAGR1	190.0	<u>171.0</u>	183.0	181.0	176.3	175.3	182.0	179.8	31
MT 1846	MT1053/SD4265	191.9	<u>171.0</u>	<u>181.7</u>	180.3	175.6	174.3	182.0	179.5	26
MT 1853	MT1053/MT1273	192.5	173.7	<u>181.7</u>	180.7	177.3	173.3	183.0	180.3	38
MT 1855	MT1053/MO8/3-4	193.4	175.7	184.7	181.3	179.4	175.7	184.0	182.0	60
MT 1856	MT1007/MT1203	192.1	173.7	182.7	180.7	175.4	175.3	182.7	180.4	40
MT 1857	MT1142/MT1273	193.2	173.0	185.3	182.0	175.2	175.3	182.3	180.9	50
MT 1861	MT1142/MT1264	190.7	<u>171.0</u>	182.3	180.3	174.9	175.0	183.0	179.6	29
MT 1862	MT1142/MT1264	189.0	<u>169.7</u>	<u>182.0</u>	180.3	174.7	172.3	182.3	178.6	18
MT 1863	MT1007/MT1273	188.8	172.3	182.7	180.7	175.4	173.3	183.0	179.5	25
MT 1865	VidaXConan(BC3F2)a2.1.3.6	194.0	173.7	184.3	182.7	177.5	175.0	183.3	181.5	57
MT 1866	VidaXConan(BC3F2)a4.6.8.3	192.2	173.7	183.0	181.3	177.2	175.0	181.3	180.5	44
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	191.4	172.3	184.3	181.3	175.6	174.0	180.0	179.8	32
MT 1868	MT1053/LIMAGR1	192.2	172.3	183.0	180.7	176.4	175.0	183.3	180.4	41
MT 1870	VIDA/H0800103L	188.8	<u>169.7</u>	<u>181.0</u>	179.3	175.6	172.0	180.3	178.1	14
MT 1872	MT1007/M0 09/3-4	188.1	<u>169.0</u>	182.7	178.3	174.2	172.7	<u>179.3</u>	177.8	10
SYN 181	10S0059-28 (SY McCloud)	188.1	<u>169.0</u>	<u>181.0</u>	180.7	<u>172.6</u>	171.7	180.0	177.6	6
SYN 182	09S0306-24 SS (SY Longmire)	189.9	171.7	<u>181.3</u>	180.0	175.3	175.0	182.0	179.3	24
SYN 183	10S0176-18 CL (SY 611 CL2)	190.6	<u>171.0</u>	182.3	180.0	174.2	173.3	181.3	179.0	20
WB 171	WB 9590	188.8	<u>169.0</u>	182.3	180.0	174.3	172.0	<u>179.3</u>	178.0	11
WB 173	WB 9719	193.3	175.0	184.0	182.0	178.7	175.7	183.3	181.7	59
WB 143	WB 9668	<u>186.0</u>	<u>169.7</u>	<u>180.7</u>	<u>177.0</u>	<u>173.3</u>	<u>170.0</u>	<u>178.0</u>	<u>176.4</u>	1
LIMAGR 171	LCS REBEL(LNR 13-0594)	188.8	<u>169.7</u>	182.3	179.0	<u>173.4</u>	172.0	<u>178.7</u>	177.7	9
LIMAGR 191	LNR 1156	188.8	<u>170.3</u>	183.0	180.7	176.9	174.0	181.0	179.2	22
LIMAGR 192	LNR 1751	189.5	<u>170.3</u>	182.3	180.0	<u>174.0</u>	172.0	180.7	178.4	17
MT 1756	MT1253/12F5 1215	189.5	<u>170.3</u>	<u>182.0</u>	180.0	175.6	173.0	181.3	178.8	19
MT 1824	MT1206/MT1273	191.9	<u>170.3</u>	<u>182.0</u>	179.7	175.8	174.0	181.0	179.2	23
MT 1871	MT1007/TRVERSE	191.9	172.3	<u>181.7</u>	181.7	177.0	175.7	183.0	180.5	43
AVERAGE		190.9	171.8	182.8	180.7	176.0	174.1	181.9	179.7	
C.V.		0.5	0.9	0.8	0.3	0.5	0.5	0.6	0.5	
PROBABILITY(LINE)		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
LSD(0.05)		1.6	2.6	2.2	1.0	1.6	1.4	1.8	1.0	
LATTICE RE(%) <sup>1)</sup>		110.2	101.9	91.9	102.5	105.7	101.1	101.2	-	

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

2019 PLANT HEIGHT (INCHES) SUMMARY FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA

LINE	VARIETY / PEDIGREE	BOZEMAN	KALISPELL	MOCCASIN	CONRAD	HAVRE	SIDNEY (DRY)	SIDNEY (IRRI)	AVG.	RANK
AGRIPR 151	SY Valda	32.4	24.6	31.8	27.8	29.0	29.8	32.6	29.7	58
AGRIPR 161	SY Rockford	35.4	24.2	33.0	30.2	30.0	32.4	33.9	31.3	27
AGRIPR 141	SY INGMAR	33.7	25.4	30.5	31.0	30.1	30.2	32.7	30.5	50
BZ 92413R	WB GUNNISON	33.6	24.1	32.1	30.8	28.6	29.5	30.8	29.9	57
BZ 996434	CORBIN	35.8	25.3	33.1	30.6	27.9	31.5	32.6	31.0	36
CI 10003	THATCHER	<u>48.9</u>	<u>31.8</u>	<u>41.0</u>	<u>38.0</u>	<u>39.6</u>	<u>41.0</u>	<u>41.5</u>	<u>40.3</u>	1
CI 13596	FORTUNA	45.1	<u>31.7</u>	<u>40.0</u>	<u>35.9</u>	36.0	36.5	37.0	37.5	2
ND 695	REEDER	39.0	23.6	34.3	31.5	31.8	33.7	35.9	32.8	8
PI 574642	MCNEAL	36.2	27.3	32.6	33.0	30.6	32.7	33.8	32.3	15
PI 633974	CHOTEAU	36.0	24.2	31.7	30.2	29.2	30.2	32.5	30.6	48
PI 642366	VIDA	36.9	24.7	32.9	30.0	28.8	30.3	32.6	30.9	41
PI 660981	DUCLAIR	35.9	27.2	32.0	30.8	28.5	30.6	32.6	31.1	32
PI 671855	EGAN	36.8	26.4	34.7	30.2	27.9	30.2	32.3	31.2	28
PI 676978	LANNING	35.3	24.3	31.8	30.2	27.1	29.6	32.2	30.1	55
PI 679964	NS PRESSER CLP	38.0	<u>29.4</u>	32.5	32.7	29.4	33.5	34.0	32.8	10
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	35.6	25.9	31.3	30.4	28.5	30.8	32.1	30.7	47
WSCIA	ALUM	37.2	25.5	32.0	31.5	29.2	31.5	32.8	31.4	25
PI 690450	DAGMAR	35.2	25.9	31.7	32.4	30.2	29.1	32.3	31.0	37
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	35.3	26.7	32.6	29.6	30.1	30.7	32.3	31.0	34
MT 1716	MT1274/RB07	36.4	24.5	32.6	30.1	29.3	30.3	33.6	31.0	38
MT 1736	12F5 2124/12SR 37	37.2	27.6	33.7	30.1	31.8	31.6	32.2	32.0	20
MT 1742	MT1274/12F5 827	35.8	25.0	31.3	30.4	30.0	30.2	33.4	30.9	42
MT 1743	MT1274/12F5 827	36.3	26.3	31.0	30.4	27.3	31.1	34.1	30.9	39
MT 1748	12F5 2124/IDO868	39.9	27.6	35.4	<u>36.4</u>	34.1	36.9	37.1	35.3	3
MT 1750	12SR93/12F5 1215	38.8	26.6	35.2	30.6	29.1	32.3	34.3	32.4	13
MT 1767	12SR225/12F5 827	35.7	24.1	33.3	31.3	30.7	30.6	32.8	31.2	29
MT 1775	12F5 827/12F5 2124	38.9	28.2	36.3	32.6	32.0	32.7	34.7	33.6	5
MT 1807	VIDA/MO8/3-4	36.5	26.4	32.7	31.0	29.4	32.3	31.2	31.4	26
MT 1809	VIDA/MO 09/3-4	37.0	24.5	33.4	30.3	28.8	30.3	33.1	31.1	33
MT 1811	MT1142/MTHW1150	38.1	27.9	33.4	33.0	32.4	33.5	35.6	33.4	6
MT 1815	MT1206/MT1203	36.0	27.1	32.4	32.1	32.6	33.1	34.1	32.5	12
MT 1818	VIDA/ULEN	35.0	26.0	32.0	30.9	30.0	33.1	34.3	31.6	23
MT 1819	VIDA/ULEN	36.7	25.6	33.3	30.4	30.0	31.6	34.0	31.7	22
MT 1821	VIDA/H0800103L	37.6	26.0	33.7	33.4	31.4	31.8	33.7	32.5	11
MT 1826	MT1142/MT1203	36.1	24.1	31.8	30.3	27.3	30.8	33.0	30.5	51

2019 PLANT HEIGHT (INCHES) SUMMARY FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA (cont.)

LINE	VARIETY / PEDIGREE	BOZEMAN	KALISPELL	MOCCASIN	CONRAD	HAVRE	SIDNEY (DRY)	SIDNEY (IRRI)	AVG.	RANK
MT 1837	VIDA/MT1219	31.9	24.0	29.9	29.9	27.9	29.0	29.8	28.9	61
MT 1838	MT1206/MT172	34.3	24.8	31.1	30.1	29.4	29.6	32.5	30.3	52
MT 1840	VIDA/LIMAGR1	33.2	25.2	31.7	31.3	27.1	30.6	32.3	30.2	53
MT 1846	MT1053/SD4265	38.0	26.2	34.7	33.6	30.9	31.9	34.5	32.8	9
MT 1853	MT1053/MT1273	35.0	26.1	31.6	30.2	29.3	30.0	34.3	30.9	40
MT 1855	MT1053/MO8/3-4	40.0	29.0	35.3	34.0	32.0	35.2	35.7	34.5	4
MT 1856	MT1007/MT1203	37.7	25.4	32.4	33.3	29.7	32.6	34.0	32.2	19
MT 1857	MT1142/MT1273	36.8	25.8	32.0	32.1	31.2	32.0	33.9	32.0	21
MT 1861	MT1142/MT1264	35.0	25.3	30.7	32.6	30.0	32.2	32.3	31.2	30
MT 1862	MT1142/MT1264	36.2	22.5	31.6	31.1	28.0	31.6	32.9	30.6	49
MT 1863	MT1007/MT1273	34.6	23.5	31.0	29.8	28.9	29.9	32.8	30.1	56
MT 1865	VidaXConan(BC3F2)a2.1.3.6	37.7	26.5	33.3	32.4	30.9	31.8	34.2	32.4	14
MT 1866	VidaXConan(BC3F2)a4.6.8.3	38.5	26.7	33.7	31.7	29.6	31.4	34.0	32.2	17
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	36.6	27.6	34.6	32.1	30.2	31.1	33.2	32.2	18
MT 1868	MT1053/LIMAGR1	34.9	26.1	30.2	30.8	28.8	31.0	33.3	30.7	45
MT 1870	VIDA/H0800103L	34.7	26.5	32.2	32.1	27.8	30.7	31.2	30.7	44
MT 1872	MT1007/M0 09/3-4	36.5	24.2	33.3	31.7	29.0	30.7	32.3	31.1	31
SYN 181	10S0059-28 (SY McCloud)	35.0	24.7	32.0	30.9	30.0	29.0	33.1	30.7	46
SYN 182	09S0306-24 SS (SY Longmire)	33.8	25.1	31.5	31.5	28.4	29.1	31.3	30.1	54
SYN 183	10S0176-18 CL (SY 611 CL2)	33.0	24.8	31.0	27.8	26.7	28.2	29.3	28.7	62
WB 171	WB 9590	30.7	21.3	28.3	27.3	24.2	26.5	28.9	26.7	63
WB 173	WB 9719	33.1	23.7	30.0	30.4	29.3	30.3	30.7	29.6	59
WB 143	WB 9668	29.3	21.2	25.8	25.6	25.1	25.7	26.3	25.6	64
LIMAGR 171	LCS REBEL(LNR 13-0594)	39.2	<u>29.9</u>	35.7	32.6	31.0	30.8	34.2	33.3	7
LIMAGR 191	LNR 1156	32.7	25.2	31.6	28.2	28.2	29.4	31.2	29.5	60
LIMAGR 192	LNR 1751	35.5	25.9	34.1	30.8	28.5	30.7	31.7	31.0	35
MT 1756	MT1253/12F5 1215	38.2	25.9	34.7	31.7	31.8	31.1	32.8	32.3	16
MT 1824	MT1206/MT1273	35.1	24.9	32.5	30.8	29.3	31.1	32.3	30.9	43
MT 1871	MT1007/TRVERSE	35.5	25.8	32.7	32.2	29.2	31.1	33.4	31.4	24
AVERAGE		36.2	25.8	32.7	31.2	29.7	31.3	33.1	31.4	
C.V.		2.1	6.2	3.6	4.5	4.8	4.2	3.1	3.2	
PROBABILITY(LINE)		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
LSD(0.05)		1.3	2.7	2.0	2.4	2.3	2.1	1.7	1.1	
LATTICE RE(%) <sup>1)</sup>		115.9	105.1	154.7	112.0	100.3	101.6	120.1	-	

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

2019 GRAIN PROTEIN (%) SUMMARY FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA

LINE	VARIETY / PEDIGREE	BOZEMAN	KALISPELL	MOCCASIN	CONRAD	HAVRE	SIDNEY (DRY)	SIDNEY (IRRI)	AVG.	RANK
AGRIPR 151	SY Valda	14.3	14.1	13.0	15.0	15.9	13.9	14.9	14.4	43
AGRIPR 161	SY Rockford	14.2	15.3	12.5	14.9	15.8	13.0	14.8	14.4	50
AGRIPR 141	SY INGMAR	15.3	16.5	13.0	15.2	16.3	14.9	15.5	15.2	9
BZ 92413R	WB GUNNISON	14.3	14.2	13.1	13.3	15.1	13.2	14.6	14.0	63
BZ 996434	CORBIN	15.1	14.3	13.4	14.2	16.5	14.1	15.7	14.8	27
CI 10003	THATCHER	15.1	14.6	<u>14.6</u>	15.0	16.3	13.5	16.4	15.1	14
CI 13596	FORTUNA	14.8	15.0	13.5	13.9	15.7	13.3	15.5	14.5	38
ND 695	REEDER	15.3	14.6	12.8	<u>15.5</u>	15.9	14.0	15.5	14.8	24
PI 574642	MCNEAL	15.7	14.8	12.6	13.9	15.5	12.8	15.7	14.4	46
PI 633974	CHOTEAU	15.3	15.2	13.1	14.7	16.6	13.9	15.0	14.8	22
PI 642366	VIDA	14.7	14.2	11.8	14.1	15.4	13.2	15.4	14.1	60
PI 660981	DUCLAIR	16.8	14.7	12.7	<u>15.6</u>	16.1	13.1	14.8	14.8	23
PI 671855	EGAN	<u>17.0</u>	<u>17.0</u>	<u>14.4</u>	<u>15.6</u>	17.1	14.7	15.8	<u>15.9</u>	2
PI 676978	LANNING	16.0	15.5	12.5	<u>15.5</u>	16.8	14.9	15.9	15.3	8
PI 679964	NS PRESSER CLP	14.8	13.6	12.5	14.0	15.7	13.4	15.1	14.2	58
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	15.3	15.4	12.9	15.2	16.5	13.0	16.0	14.9	19
WSCIA	ALUM	14.4	14.7	13.4	14.7	15.4	12.6	15.3	14.4	51
PI 690450	DAGMAR	15.3	14.9	12.6	14.8	16.3	13.6	15.9	14.8	25
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	15.8	16.0	13.7	<u>15.9</u>	16.6	14.6	16.3	15.6	4
MT 1716	MT1274/RB07	14.9	15.1	12.4	<u>15.8</u>	15.8	13.4	15.5	14.7	30
MT 1736	12F5 2124/12SR 37	15.1	14.9	12.6	14.4	16.1	13.4	15.8	14.6	36
MT 1742	MT1274/12F5 827	15.1	14.5	12.4	14.6	15.9	13.0	15.7	14.5	42
MT 1743	MT1274/12F5 827	14.0	14.3	12.0	14.3	15.8	12.7	15.9	14.1	59
MT 1748	12F5 2124/IDO868	15.3	14.9	13.5	15.1	16.3	14.5	16.0	15.1	13
MT 1750	12SR93/12F5 1215	15.0	15.0	12.9	14.1	15.5	13.1	14.8	14.3	52
MT 1767	12SR225/12F5 827	15.4	14.5	13.2	14.4	16.6	13.6	15.5	14.7	29
MT 1775	12F5 827/12F5 2124	15.4	14.3	12.2	14.5	16.2	14.1	15.9	14.7	33
MT 1807	VIDA/MO8/3-4	14.8	15.0	12.2	14.5	16.0	12.8	16.0	14.5	41
MT 1809	VIDA/M0 09/3-4	15.5	15.2	12.1	14.9	16.0	13.5	16.1	14.8	28
MT 1811	MT1142/MTHW1150	15.2	14.4	12.5	14.4	15.5	13.4	15.7	14.4	44
MT 1815	MT1206/MT1203	14.9	14.9	13.5	14.9	16.0	13.2	15.4	14.7	32
MT 1818	VIDA/ULEN	15.8	16.1	13.1	<u>15.5</u>	16.5	14.5	16.0	15.4	5
MT 1819	VIDA/ULEN	15.1	15.6	12.5	<u>15.8</u>	16.8	13.8	15.3	15.0	15
MT 1821	VIDA/H0800103L	15.2	14.8	12.6	15.2	16.0	14.4	16.6	15.0	16
MT 1826	MT1142/MT1203	15.9	15.5	12.6	15.0	16.6	14.2	16.7	15.2	10

2019 GRAIN PROTEIN (%) SUMMARY FOR THE ADVANCED SPRING WHEAT NURSERY GROWN ACROSS MONTANA (cont.)

LINE	VARIETY / PEDIGREE	BOZEMAN	KALISPELL	MOCCASIN	CONRAD	HAVRE	SIDNEY (DRY)	SIDNEY (IRRI)	AVG.	RANK
MT 1837	VIDA/MT1219	15.3	15.4	13.2	<u>15.4</u>	16.6	13.6	16.5	15.1	11
MT 1838	MT1206/MT172	14.3	14.7	12.2	14.1	15.9	13.5	15.6	14.3	54
MT 1840	VIDA/LIMAGR1	14.2	14.3	12.2	13.9	15.5	13.5	14.5	14.0	62
MT 1846	MT1053/SD4265	15.8	15.1	12.9	<u>15.4</u>	16.9	14.3	<u>16.9</u>	15.3	6
MT 1853	MT1053/MT1273	14.8	14.8	12.3	14.0	15.8	13.6	15.7	14.4	47
MT 1855	MT1053/MO8/3-4	14.7	14.8	13.0	14.6	15.9	13.5	15.1	14.5	39
MT 1856	MT1007/MT1203	16.1	15.9	12.8	15.2	16.7	13.9	16.6	15.3	7
MT 1857	MT1142/MT1273	15.1	15.3	12.6	15.1	16.1	14.1	14.6	14.7	31
MT 1861	MT1142/MT1264	15.3	15.2	12.9	14.7	16.4	13.3	16.2	14.9	21
MT 1862	MT1142/MT1264	15.0	14.9	12.8	14.4	16.1	13.1	15.3	14.5	40
MT 1863	MT1007/MT1273	15.2	15.4	12.2	14.9	16.5	13.7	16.3	14.9	20
MT 1865	VidaXConan(BC3F2)a2.1.3.6	14.5	14.5	12.8	14.4	15.4	13.4	15.6	14.4	48
MT 1866	VidaXConan(BC3F2)a4.6.8.3	14.4	14.8	12.6	14.2	15.8	13.0	15.4	14.3	55
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	15.0	15.6	13.7	15.3	16.9	13.3	14.9	15.0	17
MT 1868	MT1053/LIMAGR1	14.5	13.5	12.8	12.8	14.9	12.5	14.5	13.6	64
MT 1870	VIDA/H0800103L	14.3	14.6	12.0	14.3	15.1	13.5	15.7	14.2	57
MT 1872	MT1007/M0 09/3-4	14.8	14.4	13.3	14.6	15.5	13.6	14.9	14.4	45
SYN 181	10S0059-28 (SY McCloud)	16.0	15.8	13.3	<u>16.0</u>	17.1	<u>15.5</u>	15.8	15.6	3
SYN 182	09S0306-24 SS (SY Longmire)	15.2	15.3	12.5	14.7	16.6	13.7	15.4	14.8	26
SYN 183	10S0176-18 CL (SY 611 CL2)	15.2	15.2	12.6	15.1	16.1	13.2	14.8	14.6	37
WB 171	WB 9590	15.3	15.6	12.7	<u>15.7</u>	16.5	14.3	15.9	15.1	12
WB 173	WB 9719	14.3	15.3	11.8	13.9	15.5	13.0	15.0	14.1	61
WB 143	WB 9668	16.7	<u>16.7</u>	13.6	<u>15.5</u>	<u>18.1</u>	<u>16.0</u>	<u>17.4</u>	<u>16.3</u>	1
LIMAGR 171	LCS REBEL(LNR 13-0594)	14.8	15.0	12.7	<u>15.5</u>	16.5	14.2	15.8	14.9	18
LIMAGR 191	LNR 1156	14.5	14.3	12.8	14.9	16.1	13.4	14.6	14.4	49
LIMAGR 192	LNR 1751	14.9	14.6	12.4	15.3	15.8	14.2	15.4	14.7	34
MT 1756	MT1253/12F5 1215	14.8	14.8	12.3	14.2	16.1	13.2	15.0	14.3	53
MT 1824	MT1206/MT1273	14.8	15.2	13.1	15.0	16.4	13.3	14.7	14.6	35
MT 1871	MT1007/TRVERSE	14.9	14.3	12.6	14.2	15.9	12.8	15.5	14.3	56
AVERAGE		15.1	15.0	12.8	14.8	16.1	13.7	15.6	14.7	
C.V.		1REP	1.6	3.0	2.7	1.2	3.3	2.8	3.0	
PROBABILITY(LINE)		1REP	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
LSD(0.05)		1REP	0.4	0.7	0.7	0.3	0.8	0.7	0.5	
LATTICE RE(%) <sup>1)</sup>		1REP	180.1	277.1	117.6	132.2	266.8	123.1		

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

2019 ADVANCED SPRING WHEAT NURSERY, BOZEMAN (DRY)

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	STEM SOLIDNESS (5-25)
AGRIPR 151	SY Valda	188.9	32.4	<u>92.7</u>	60.6	14.3	9.7
AGRIPR 161	SY Rockford	193.3	35.4	<u>95.0</u>	58.6	14.2	11.1
AGRIPR 141	SY INGMAR	191.1	33.7	89.6	60.9	15.3	10.0
BZ 92413R	WB GUNNISON	189.5	33.6	77.4	61.5	14.3	13.6
BZ 996434	CORBIN	187.9	35.8	83.1	59.9	15.1	13.7
CI 10003	THATCHER	194.4	<u>48.9</u>	70.5	59.8	15.1	9.5
CI 13596	FORTUNA	192.5	45.1	78.5	59.7	14.8	15.5
ND 695	REEDER	193.5	39.0	87.1	60.9	15.3	8.8
PI 574642	MCNEAL	193.1	36.2	74.8	59.7	15.7	9.2
PI 633974	CHOTEAU	191.0	36.0	82.6	58.7	15.3	<u>22.0</u>
PI 642366	VIDA	193.1	36.9	<u>91.9</u>	59.6	14.7	12.6
PI 660981	DUCLAIR	188.9	35.9	<u>94.0</u>	59.4	16.8	18.6
PI 671855	EGAN	192.8	36.8	81.6	59.5	<u>17.0</u>	8.7
PI 676978	LANNING	190.2	35.3	89.4	60.3	16.0	8.7
PI 679964	NS PRESSER CLP	194.4	38.0	89.1	58.7	14.8	9.6
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	191.9	35.6	89.5	58.8	15.3	<u>23.1</u>
WSCIA	ALUM	193.0	37.2	89.5	62.3	14.4	11.2
PI 690450	DAGMAR	188.5	35.2	89.1	60.1	15.3	14.9
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	<u>187.5</u>	35.3	<u>91.1</u>	58.3	15.8	16.1
MT 1716	MT1274/RB07	188.3	36.4	89.9	59.9	14.9	10.2
MT 1736	12F5 2124/12SR 37	192.4	37.2	87.4	56.9	15.1	<u>22.6</u>
MT 1742	MT1274/12F5 827	187.8	35.8	90.8	59.2	15.1	17.7
MT 1743	MT1274/12F5 827	192.5	36.3	86.4	58.4	14.0	16.1
MT 1748	12F5 2124/IDO868	194.1	39.9	88.5	59.4	15.3	16.2
MT 1750	12SR93/12F5 1215	188.0	38.8	<u>91.5</u>	60.2	15.0	13.9
MT 1767	12SR225/12F5 827	187.7	35.7	<u>96.4</u>	57.8	15.4	17.6
MT 1775	12F5 827/12F5 2124	191.8	38.9	<u>92.7</u>	59.1	15.4	13.8
MT 1807	VIDA/MO8/3-4	191.5	36.5	<u>94.9</u>	58.9	14.8	14.1
MT 1809	VIDA/M0 09/3-4	192.4	37.0	<u>93.3</u>	58.8	15.5	11.7
MT 1811	MT1142/MTHW1150	193.1	38.1	73.9	59.8	15.2	12.9
MT 1815	MT1206/MT1203	193.4	36.0	88.7	59.9	14.9	<u>20.8</u>
MT 1818	VIDA/ULEN	192.5	35.0	<u>98.3</u>	60.8	15.8	10.7
MT 1819	VIDA/ULEN	190.2	36.7	<u>99.7</u>	60.3	15.1	11.8
MT 1821	VIDA/H0800103L	193.5	37.6	84.5	62.2	15.2	12.0
MT 1826	MT1142/MT1203	189.8	36.1	<u>91.8</u>	57.4	15.9	15.3
MT 1837	VIDA/MT1219	190.1	31.9	86.0	59.5	15.3	17.8
MT 1838	MT1206/MT172	189.1	34.3	85.2	58.3	14.3	17.1
MT 1840	VIDA/LIMAGR1	190.0	33.2	83.3	61.4	14.2	18.0
MT 1846	MT1053/SD4265	191.9	38.0	89.5	61.0	15.8	11.2
MT 1853	MT1053/MT1273	192.5	35.0	83.3	60.7	14.8	18.7
MT 1855	MT1053/MO8/3-4	193.4	40.0	<u>96.9</u>	60.6	14.7	16.7

2019 ADVANCED SPRING WHEAT NURSERY, BOZEMAN (DRY) (cont.)

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	STEM SOLIDNESS (5-25)
MT 1856	MT1007/MT1203	192.1	37.7	85.8	60.0	16.1	15.3
MT 1857	MT1142/MT1273	193.2	36.8	82.3	61.1	15.1	10.3
MT 1861	MT1142/MT1264	190.7	35.0	86.9	60.5	15.3	16.4
MT 1862	MT1142/MT1264	189.0	36.2	90.1	59.7	15.0	<u>20.7</u>
MT 1863	MT1007/MT1273	188.8	34.6	87.6	59.8	15.2	16.4
MT 1865	VidaXConan(BC3F2)a2.1.3.6	194.0	37.7	87.4	59.2	14.5	11.0
MT 1866	VidaXConan(BC3F2)a4.6.8.3	192.2	38.5	<u>94.2</u>	60.6	14.4	10.8
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	191.4	36.6	87.1	60.2	15.0	11.3
MT 1868	MT1053/LIMAGR1	192.2	34.9	<u>95.1</u>	59.6	14.5	14.0
MT 1870	VIDA/H0800103L	188.8	34.7	<u>92.7</u>	60.3	14.3	16.3
MT 1872	MT1007/M0 09/3-4	188.1	36.5	<u>96.0</u>	60.3	14.8	15.3
SYN 181	10S0059-28 (SY McCloud)	188.1	35.0	85.6	61.0	16.0	10.7
SYN 182	09S0306-24 SS (SY Longmire)	189.9	33.8	87.2	61.7	15.2	19.6
SYN 183	10S0176-18 CL (SY 611 CL2)	190.6	33.0	79.4	61.5	15.2	10.0
WB 171	WB 9590	188.8	30.7	<u>92.8</u>	59.8	15.3	9.5
WB 173	WB 9719	193.3	33.1	<u>94.3</u>	<u>64.2</u>	14.3	9.4
WB 143	WB 9668	<u>186.0</u>	29.3	84.1	59.4	16.7	11.0
LIMAGR 171	LCS REBEL(LNR 13-0594)	188.8	39.2	<u>94.2</u>	61.4	14.8	9.8
LIMAGR 191	LNR 1156	188.8	32.7	87.8	60.2	14.5	9.8
LIMAGR 192	LNR 1751	189.5	35.5	89.3	59.4	14.9	9.9
MT 1756	MT1253/12F5 1215	189.5	38.2	84.9	58.5	14.8	15.7
MT 1824	MT1206/MT1273	191.9	35.1	<u>91.9</u>	59.3	14.8	14.8
MT 1871	MT1007/TRVERSE	191.9	35.5	86.3	60.4	14.9	18.5
	MEAN	190.9	36.2	88.3	59.9	15.1	13.9
	C.V.	0.5	2.1	5.8	1REP	1REP	13.5
	PROBABILITY (ENTRY)	<0.001	<0.001	<0.001	1REP	1REP	<0.001
	LSD(0.05)	1.6	1.3	8.8	1REP	1REP	3.0
	LATTICE RE(%) <sup>1)</sup>	110.2	115.9	130.6	1REP	1REP	101.8

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

2019 ADVANCED SPRING WHEAT NURSERY, KALISPELL (DRY)

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	RUST (%)	KERNEL WEIGHT (G)
AGRIPR 151	SY Valda	<u>169.7</u>	24.6	<u>54.0</u>	60.5	14.1	8.8	31.9
AGRIPR 161	SY Rockford	175.0	24.2	44.1	59.0	15.3	30.6	36.9
AGRIPR 141	SY INGMAR	<u>170.3</u>	25.4	45.8	62.0	16.5	3.0	36.0
BZ 92413R	WB GUNNISON	<u>169.7</u>	24.1	45.2	61.6	14.2	5.7	<u>43.4</u>
BZ 996434	CORBIN	<u>169.0</u>	25.3	43.5	61.1	14.3	6.5	40.3
CI 10003	THATCHER	175.7	<u>31.8</u>	43.9	60.1	14.6	10.1	30.7
CI 13596	FORTUNA	<u>170.3</u>	<u>31.7</u>	38.3	60.0	15.0	7.4	41.6
ND 695	REEDER	175.0	23.6	46.7	61.5	14.6	3.4	34.0
PI 574642	MCNEAL	175.0	27.3	49.9	60.5	14.8	26.9	38.0
PI 633974	CHOTEAU	173.7	24.2	38.8	59.8	15.2	5.7	33.7
PI 642366	VIDA	172.0	24.7	49.0	60.5	14.2	5.5	34.7
PI 660981	DUCLAIR	<u>169.0</u>	27.2	52.2	60.3	14.7	4.7	38.0
PI 671855	EGAN	173.7	26.4	42.9	59.9	<u>17.0</u>	5.1	36.0
PI 676978	LANNING	<u>171.0</u>	24.3	46.1	60.9	15.5	4.8	37.7
PI 679964	NS PRESSER CLP	175.0	<u>29.4</u>	<u>59.6</u>	60.7	13.6	13.7	36.9
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	172.3	25.9	42.9	59.8	15.4	8.2	35.9
WSCIA	ALUM	171.7	25.5	50.1	62.1	14.7	3.1	41.2
PI 690450	DAGMAR	<u>169.7</u>	25.9	50.1	60.8	14.9	12.2	39.7
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	<u>169.7</u>	26.7	46.9	59.2	16.0	4.4	37.0
MT 1716	MT1274/RB07	<u>170.3</u>	24.5	47.0	60.0	15.1	9.6	29.6
MT 1736	12F5 2124/12SR 37	173.7	27.6	52.4	58.0	14.9	6.5	39.9
MT 1742	MT1274/12F5 827	<u>169.7</u>	25.0	47.7	60.2	14.5	7.6	35.0
MT 1743	MT1274/12F5 827	172.3	26.3	51.2	58.6	14.3	<u>31.1</u>	30.7
MT 1748	12F5 2124/IDO868	177.0	27.6	48.2	59.3	14.9	12.1	<u>42.9</u>
MT 1750	12SR93/12F5 1215	<u>169.0</u>	26.6	49.9	61.1	15.0	5.3	38.5
MT 1767	12SR225/12F5 827	<u>169.0</u>	24.1	46.5	59.2	14.5	5.9	34.8
MT 1775	12F5 827/12F5 2124	172.3	28.2	<u>54.8</u>	60.5	14.3	3.1	42.0
MT 1807	VIDA/MO8/3-4	172.3	26.4	49.9	60.9	15.0	12.8	36.3
MT 1809	VIDA/M0 09/3-4	<u>170.7</u>	24.5	47.5	59.9	15.2	7.2	34.0
MT 1811	MT1142/MTHW1150	173.0	27.9	<u>57.8</u>	61.5	14.4	12.6	37.9
MT 1815	MT1206/MT1203	175.7	27.1	51.2	60.7	14.9	7.3	39.1
MT 1818	VIDA/ULEN	172.3	26.0	42.7	61.3	16.1	2.4	40.3
MT 1819	VIDA/ULEN	172.3	25.6	41.4	61.0	15.6	5.6	34.0
MT 1821	VIDA/H0800103L	173.7	26.0	43.5	62.3	14.8	9.0	36.1
MT 1826	MT1142/MT1203	<u>171.0</u>	24.1	46.3	58.1	15.5	9.2	40.5
MT 1837	VIDA/MT1219	173.7	24.0	39.1	60.6	15.4	14.4	36.1
MT 1838	MT1206/MT172	<u>169.7</u>	24.8	41.4	59.5	14.7	12.7	34.4
MT 1840	VIDA/LIMAGR1	<u>171.0</u>	25.2	43.2	62.6	14.3	10.7	<u>42.4</u>
MT 1846	MT1053/SD4265	<u>171.0</u>	26.2	49.7	61.7	15.1	4.4	38.6
MT 1853	MT1053/MT1273	173.7	26.1	48.0	62.1	14.8	15.0	37.6
MT 1855	MT1053/MO8/3-4	175.7	29.0	<u>57.2</u>	61.9	14.8	8.3	38.5

2019 ADVANCED SPRING WHEAT NURSERY, KALISPELL (DRY) (cont.)

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	RUST (%)	KERNEL WEIGHT (G)
MT 1856	MT1007/MT1203	173.7	25.4	45.2	59.8	15.9	8.5	37.7
MT 1857	MT1142/MT1273	173.0	25.8	<u>55.5</u>	61.7	15.3	9.3	36.0
MT 1861	MT1142/MT1264	<u>171.0</u>	25.3	48.4	61.9	15.2	17.2	36.0
MT 1862	MT1142/MT1264	<u>169.7</u>	22.5	44.4	60.0	14.9	2.6	38.7
MT 1863	MT1007/MT1273	172.3	23.5	41.3	59.9	15.4	9.2	34.5
MT 1865	VidaXConan(BC3F2)a2.1.3.6	173.7	26.5	48.9	59.8	14.5	1.9	37.3
MT 1866	VidaXConan(BC3F2)a4.6.8.3	173.7	26.7	50.1	61.0	14.8	4.6	34.7
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	172.3	27.6	48.2	61.1	15.6	2.3	35.9
MT 1868	MT1053/LIMAGR1	172.3	26.1	<u>63.7</u>	61.3	13.5	1.6	40.4
MT 1870	VIDA/H0800103L	<u>169.7</u>	26.5	<u>54.2</u>	61.4	14.6	6.5	36.1
MT 1872	MT1007/M0 09/3-4	<u>169.0</u>	24.2	47.1	60.7	14.4	5.1	34.1
SYN 181	10S0059-28 (SY McCloud)	<u>169.0</u>	24.7	45.3	61.9	15.8	2.9	38.3
SYN 182	09S0306-24 SS (SY Longmire)	171.7	25.1	45.5	62.0	15.3	3.6	36.5
SYN 183	10S0176-18 CL (SY 611 CL2)	<u>171.0</u>	24.8	48.9	63.1	15.2	9.9	34.1
WB 171	WB 9590	<u>169.0</u>	21.3	44.4	60.3	15.6	9.4	37.4
WB 173	WB 9719	175.0	23.7	38.8	<u>63.6</u>	15.3	4.2	35.9
WB 143	WB 9668	<u>169.7</u>	21.2	39.3	60.3	<u>16.7</u>	6.3	33.3
LIMAGR 171	LCS REBEL(LNR 13-0594)	<u>169.7</u>	<u>29.9</u>	<u>56.4</u>	62.7	15.0	5.2	40.9
LIMAGR 191	LNR 1156	<u>170.3</u>	25.2	48.4	60.4	14.3	8.9	33.6
LIMAGR 192	LNR 1751	<u>170.3</u>	25.9	<u>58.3</u>	61.4	14.6	0.0	36.8
MT 1756	MT1253/12F5 1215	<u>170.3</u>	25.9	46.6	59.2	14.8	0.5	<u>44.8</u>
MT 1824	MT1206/MT1273	<u>170.3</u>	24.9	43.0	59.2	15.2	5.8	35.6
MT 1871	MT1007/TRVERSE	172.3	25.8	49.3	60.4	14.3	0.0	36.9
	MEAN	171.8	25.8	47.8	60.7	15.0	7.9	37.0
	C.V.	0.9	6.2	12.7	0.5	1.6	114.0	4.4
	PROBABILITY (ENTRY)	<0.001	<0.001	<0.01	<0.001	<0.001	ns	<0.001
	LSD(0.05)	2.6	2.7	10.5	0.5	0.4	15.7	2.7
	LATTICE RE(%) <sup>1)</sup>	101.9	105.1	166.2	101.1	180.1	266.7	99.3

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

2019 ADVANCED SPRING WHEAT NURSERY, MOCCASIN (DRY)

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
AGRIPR 151	SY Valda	183.0	31.8	49.5	59.5	13.0
AGRIPR 161	SY Rockford	187.3	33.0	<u>61.4</u>	59.7	12.5
AGRIPR 141	SY INGMAR	182.7	30.5	52.8	60.4	13.0
BZ 92413R	WB GUNNISON	183.3	32.1	53.2	59.7	13.1
BZ 996434	CORBIN	<u>181.3</u>	33.1	53.2	60.1	13.4
CI 10003	THATCHER	186.7	<u>41.0</u>	27.5	55.0	<u>14.6</u>
CI 13596	FORTUNA	182.7	<u>40.0</u>	43.1	59.1	13.5
ND 695	REEDER	183.7	34.3	43.8	60.6	12.8
PI 574642	MCNEAL	184.3	32.6	45.9	59.2	12.6
PI 633974	CHOTEAU	182.7	31.7	50.3	60.4	13.1
PI 642366	VIDA	183.7	32.9	<u>53.5</u>	59.3	11.8
PI 660981	DUCLAIR	<u>181.3</u>	32.0	47.6	60.0	12.7
PI 671855	EGAN	183.3	34.7	47.1	58.7	<u>14.4</u>
PI 676978	LANNING	<u>180.0</u>	31.8	<u>59.1</u>	61.2	12.5
PI 679964	NS PRESSER CLP	184.7	32.5	51.6	57.9	12.5
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	182.7	31.3	47.9	61.1	12.9
WSCIA	ALUM	183.3	32.0	42.1	58.0	13.4
PI 690450	DAGMAR	<u>181.7</u>	31.7	46.4	61.0	12.6
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	<u>181.7</u>	32.6	53.3	58.8	13.7
MT 1716	MT1274/RB07	<u>181.0</u>	32.6	43.0	60.6	12.4
MT 1736	12F5 2124/12SR 37	183.0	33.7	51.7	57.5	12.6
MT 1742	MT1274/12F5 827	<u>181.0</u>	31.3	49.8	61.0	12.4
MT 1743	MT1274/12F5 827	182.3	31.0	45.0	59.4	12.0
MT 1748	12F5 2124/IDO868	183.7	35.4	48.5	57.1	13.5
MT 1750	12SR93/12F5 1215	<u>180.0</u>	35.2	<u>58.1</u>	61.1	12.9
MT 1767	12SR225/12F5 827	182.3	33.3	52.3	58.0	13.2
MT 1775	12F5 827/12F5 2124	183.3	36.3	53.3	59.0	12.2
MT 1807	VIDA/MO8/3-4	<u>182.0</u>	32.7	51.0	60.1	12.2
MT 1809	VIDA/M0 09/3-4	183.7	33.4	<u>59.2</u>	59.4	12.1
MT 1811	MT1142/MTHW1150	183.3	33.4	46.1	60.0	12.5
MT 1815	MT1206/MT1203	184.3	32.4	51.8	58.9	13.5
MT 1818	VIDA/ULEN	183.7	32.0	49.8	59.2	13.1
MT 1819	VIDA/ULEN	183.3	33.3	42.9	60.6	12.5
MT 1821	VIDA/H0800103L	183.7	33.7	<u>54.9</u>	<u>62.1</u>	12.6
MT 1826	MT1142/MT1203	182.7	31.8	51.1	59.6	12.6
MT 1837	VIDA/MT1219	183.3	29.9	47.6	60.0	13.2
MT 1838	MT1206/MT172	182.7	31.1	49.1	59.8	12.2
MT 1840	VIDA/LIMAGR1	183.0	31.7	47.5	<u>61.5</u>	12.2
MT 1846	MT1053/SD4265	<u>181.7</u>	34.7	<u>54.6</u>	60.2	12.9
MT 1853	MT1053/MT1273	<u>181.7</u>	31.6	49.8	61.0	12.3
MT 1855	MT1053/MO8/3-4	184.7	35.3	53.2	58.8	13.0

2019 ADVANCED SPRING WHEAT NURSERY, MOCCASIN (DRY) (cont.)

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
MT 1856	MT1007/MT1203	182.7	32.4	49.2	60.4	12.8
MT 1857	MT1142/MT1273	185.3	32.0	45.2	60.0	12.6
MT 1861	MT1142/MT1264	182.3	30.7	44.2	<u>61.9</u>	12.9
MT 1862	MT1142/MT1264	<u>182.0</u>	31.6	<u>54.4</u>	60.5	12.8
MT 1863	MT1007/MT1273	182.7	31.0	51.9	60.8	12.2
MT 1865	VidaXConan(BC3F2)a2.1.3.6	184.3	33.3	49.6	57.1	12.8
MT 1866	VidaXConan(BC3F2)a4.6.8.3	183.0	33.7	49.8	59.2	12.6
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	184.3	34.6	51.3	59.6	13.7
MT 1868	MT1053/LIMAGR1	183.0	30.2	47.6	58.2	12.8
MT 1870	VIDA/H0800103L	<u>181.0</u>	32.2	51.7	61.1	12.0
MT 1872	MT1007/M0 09/3-4	182.7	33.3	51.2	57.5	13.3
SYN 181	10S0059-28 (SY McCloud)	<u>181.0</u>	32.0	46.7	<u>62.4</u>	13.3
SYN 182	09S0306-24 SS (SY Longmire)	<u>181.3</u>	31.5	48.6	<u>61.5</u>	12.5
SYN 183	10S0176-18 CL (SY 611 CL2)	182.3	31.0	47.8	<u>62.5</u>	12.6
WB 171	WB 9590	182.3	28.3	<u>56.9</u>	60.4	12.7
WB 173	WB 9719	184.0	30.0	44.5	<u>62.6</u>	11.8
WB 143	WB 9668	<u>180.7</u>	25.8	45.8	61.4	13.6
LIMAGR 171	LCS REBEL(LNR 13-0594)	182.3	35.7	49.3	61.1	12.7
LIMAGR 191	LNR 1156	183.0	31.6	46.1	59.7	12.8
LIMAGR 192	LNR 1751	182.3	34.1	<u>61.1</u>	60.5	12.4
MT 1756	MT1253/12F5 1215	<u>182.0</u>	34.7	52.5	58.8	12.3
MT 1824	MT1206/MT1273	<u>182.0</u>	32.5	42.9	58.0	13.1
MT 1871	MT1007/TRVERSE	<u>181.7</u>	32.7	47.8	59.8	12.6
	MEAN	182.8	32.7	49.6	59.8	12.8
	C.V.	0.8	3.6	9.5	1.2	3.0
	PROBABILITY (ENTRY)	<0.001	<0.001	<0.001	<0.001	<0.001
	LSD(0.05)	2.2	2.0	8.0	1.2	0.7
	LATTICE RE(%) <sup>1)</sup>	91.9	154.7	113.9	150.2	277.1

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

2019 ADVANCED SPRING WHEAT NURSERY, CONRAD (DRY)

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	LODGING (%)
AGRIPR 151	SY Valda	181.0	27.8	50.1	62.0	15.0	18.3
AGRIPR 161	SY Rockford	182.7	30.2	45.3	59.7	14.9	31.7
AGRIPR 141	SY INGMAR	181.0	31.0	53.7	61.4	15.2	11.7
BZ 92413R	WB GUNNISON	180.3	30.8	<u>58.1</u>	62.7	13.3	6.0
BZ 996434	CORBIN	180.0	30.6	51.6	62.9	14.2	6.7
CI 10003	THATCHER	184.3	<u>38.0</u>	35.3	57.7	15.0	45.0
CI 13596	FORTUNA	182.0	<u>35.9</u>	54.0	62.1	13.9	16.7
ND 695	REEDER	182.0	31.5	46.2	61.9	<u>15.5</u>	25.0
PI 574642	MCNEAL	181.3	33.0	50.9	61.2	13.9	43.3
PI 633974	CHOTEAU	180.3	30.2	53.0	60.7	14.7	6.3
PI 642366	VIDA	181.3	30.0	<u>58.1</u>	61.9	14.1	14.0
PI 660981	DUCLAIR	179.0	30.8	54.2	60.9	<u>15.6</u>	6.0
PI 671855	EGAN	180.3	30.2	46.3	60.1	<u>15.6</u>	43.3
PI 676978	LANNING	180.0	30.2	49.3	61.5	<u>15.5</u>	17.3
PI 679964	NS PRESSER CLP	183.3	32.7	57.1	61.5	14.0	14.3
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	181.7	30.4	<u>59.4</u>	61.3	15.2	5.7
WSCIA	ALUM	181.0	31.5	46.7	60.4	14.7	40.0
PI 690450	DAGMAR	179.3	32.4	<u>66.7</u>	62.7	14.8	8.0
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	<u>177.7</u>	29.6	52.3	59.6	<u>15.9</u>	9.7
MT 1716	MT1274/RB07	178.0	30.1	47.5	62.3	<u>15.8</u>	30.0
MT 1736	12F5 2124/12SR 37	182.0	30.1	<u>62.8</u>	60.6	14.4	6.7
MT 1742	MT1274/12F5 827	<u>177.7</u>	30.4	53.2	62.3	14.6	9.3
MT 1743	MT1274/12F5 827	182.0	30.4	<u>65.3</u>	61.1	14.3	6.3
MT 1748	12F5 2124/IDO868	183.3	<u>36.4</u>	<u>61.2</u>	59.9	15.1	11.7
MT 1750	12SR93/12F5 1215	180.0	30.6	54.2	63.3	14.1	23.3
MT 1767	12SR225/12F5 827	179.3	31.3	55.4	60.2	14.4	8.3
MT 1775	12F5 827/12F5 2124	182.3	32.6	<u>58.1</u>	61.2	14.5	13.7
MT 1807	VIDA/MO8/3-4	180.0	31.0	54.6	61.2	14.5	10.0
MT 1809	VIDA/M0 09/3-4	181.3	30.3	<u>62.2</u>	61.4	14.9	10.0
MT 1811	MT1142/MTHW1150	181.7	33.0	44.2	61.5	14.4	13.3
MT 1815	MT1206/MT1203	182.3	32.1	<u>62.3</u>	61.4	14.9	6.0
MT 1818	VIDA/ULEN	180.7	30.9	50.6	61.4	<u>15.5</u>	36.7
MT 1819	VIDA/ULEN	181.0	30.4	39.7	58.7	<u>15.8</u>	<u>61.7</u>
MT 1821	VIDA/H0800103L	182.3	33.4	54.9	62.5	15.2	7.0
MT 1826	MT1142/MT1203	180.7	30.3	<u>58.7</u>	60.7	15.0	15.0
MT 1837	VIDA/MT1219	180.7	29.9	52.7	62.6	<u>15.4</u>	9.3
MT 1838	MT1206/MT172	180.0	30.1	54.4	59.4	14.1	20.0
MT 1840	VIDA/LIMAGR1	181.0	31.3	56.0	63.8	13.9	7.7
MT 1846	MT1053/SD4265	180.3	33.6	57.1	61.6	<u>15.4</u>	10.7
MT 1853	MT1053/MT1273	180.7	30.2	<u>62.4</u>	63.5	14.0	8.7
MT 1855	MT1053/MO8/3-4	181.3	34.0	57.2	62.2	14.6	6.7

2019 ADVANCED SPRING WHEAT NURSERY, CONRAD (DRY) (cont.)

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	LODGING (%)
MT 1856	MT1007/MT1203	180.7	33.3	<u>58.7</u>	61.2	15.2	7.0
MT 1857	MT1142/MT1273	182.0	32.1	<u>61.0</u>	62.5	15.1	13.3
MT 1861	MT1142/MT1264	180.3	32.6	57.4	63.4	14.7	6.7
MT 1862	MT1142/MT1264	180.3	31.1	<u>62.9</u>	61.6	14.4	6.0
MT 1863	MT1007/MT1273	180.7	29.8	55.5	61.6	14.9	6.7
MT 1865	VidaXConan(BC3F2)a2.1.3.6	182.7	32.4	<u>59.8</u>	61.2	14.4	6.0
MT 1866	VidaXConan(BC3F2)a4.6.8.3	181.3	31.7	<u>63.5</u>	62.0	14.2	11.7
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	181.3	32.1	55.8	61.4	15.3	4.0
MT 1868	MT1053/LIMAGR1	180.7	30.8	<u>61.3</u>	61.6	12.8	13.3
MT 1870	VIDA/H0800103L	179.3	32.1	55.8	61.3	14.3	10.3
MT 1872	MT1007/M0 09/3-4	178.3	31.7	55.4	61.0	14.6	11.7
SYN 181	10S0059-28 (SY McCloud)	180.7	30.9	51.8	63.3	<u>16.0</u>	26.7
SYN 182	09S0306-24 SS (SY Longmire)	180.0	31.5	<u>59.7</u>	62.1	14.7	16.7
SYN 183	10S0176-18 CL (SY 611 CL2)	180.0	27.8	51.0	63.4	15.1	11.0
WB 171	WB 9590	180.0	27.3	50.6	62.4	<u>15.7</u>	20.0
WB 173	WB 9719	182.0	30.4	<u>64.2</u>	<u>65.2</u>	13.9	15.0
WB 143	WB 9668	<u>177.0</u>	25.6	55.1	62.2	<u>15.5</u>	21.7
LIMAGR 171	LCS REBEL(LNR 13-0594)	179.0	32.6	46.5	<u>63.9</u>	<u>15.5</u>	31.7
LIMAGR 191	LNR 1156	180.7	28.2	47.9	62.0	14.9	26.7
LIMAGR 192	LNR 1751	180.0	30.8	53.9	62.9	15.3	20.0
MT 1756	MT1253/12F5 1215	180.0	31.7	56.3	60.2	14.2	13.3
MT 1824	MT1206/MT1273	179.7	30.8	55.5	60.4	15.0	11.0
MT 1871	MT1007/TRVERSE	181.7	32.2	<u>63.3</u>	61.8	14.2	5.3
	MEAN	180.7	31.2	54.9	61.6	14.8	15.9
	C.V.	0.3	4.5	9.5	1.3	2.7	43.2
	PROBABILITY (ENTRY)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	LSD(0.05)	1.0	2.4	9.0	1.4	0.7	11.1
	LATTICE RE(%) <sup>1)</sup>	102.5	112.0	163.3	198.4	117.6	104.3

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

2019 ADVANCED SPRING WHEAT NURSERY, HAVRE (DRY)

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	SAW FYL CUT (%)	FALLING NUMBER (%)
AGRIPR 151	SY Valda	176.5	29.0	47.5	59.9	15.9	16.1	461
AGRIPR 161	SY Rockford	177.8	30.0	45.2	57.9	15.8	18.2	480
AGRIPR 141	SY INGMAR	176.6	30.1	44.6	60.6	16.3	20.3	502
BZ 92413R	WB GUNNISON	177.2	28.6	<u>52.6</u>	60.2	15.1	1.5	522
BZ 996434	CORBIN	175.2	27.9	45.6	59.9	16.5	1.0	464
CI 10003	THATCHER	179.4	<u>39.6</u>	37.6	54.1	16.3	16.3	437
CI 13596	FORTUNA	178.6	36.0	41.2	58.0	15.7	4.1	485
ND 695	REEDER	174.9	31.8	42.3	59.7	15.9	17.6	437
PI 574642	MCNEAL	176.2	30.6	47.0	58.5	15.5	18.5	519
PI 633974	CHOTEAU	176.8	29.2	44.5	58.8	16.6	4.9	455
PI 642366	VIDA	177.2	28.8	<u>52.1</u>	59.4	15.4	8.8	452
PI 660981	DUCLAIR	175.0	28.5	49.2	58.6	16.1	2.6	439
PI 671855	EGAN	176.4	27.9	44.1	57.2	17.1	<u>26.0</u>	504
PI 676978	LANNING	<u>173.6</u>	27.1	44.5	59.9	16.8	<u>22.9</u>	430
PI 679964	NS PRESSER CLP	178.6	29.4	46.8	58.4	15.7	7.5	467
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	176.7	28.5	<u>51.4</u>	58.8	16.5	1.3	462
WSCIA	ALUM	176.7	29.2	<u>50.0</u>	59.5	15.4	13.2	460
PI 690450	DAGMAR	174.3	30.2	<u>50.1</u>	59.3	16.3	2.8	487
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	<u>172.6</u>	30.1	46.7	58.5	16.6	2.9	408
MT 1716	MT1274/RB07	<u>173.6</u>	29.3	<u>51.0</u>	60.0	15.8	18.5	467
MT 1736	12F5 2124/12SR 37	178.4	31.8	48.4	57.5	16.1	2.5	445
MT 1742	MT1274/12F5 827	<u>174.0</u>	30.0	<u>49.7</u>	59.3	15.9	3.9	449
MT 1743	MT1274/12F5 827	178.5	27.3	<u>50.1</u>	57.4	15.8	1.9	461
MT 1748	12F5 2124/IDO868	179.7	34.1	<u>49.6</u>	57.4	16.3	13.6	419
MT 1750	12SR93/12F5 1215	<u>173.8</u>	29.1	<u>52.0</u>	60.0	15.5	7.8	469
MT 1767	12SR225/12F5 827	<u>172.8</u>	30.7	<u>51.1</u>	57.9	16.6	1.0	450
MT 1775	12F5 827/12F5 2124	178.2	32.0	46.2	57.9	16.2	5.1	510
MT 1807	VIDA/MO8/3-4	175.2	29.4	<u>49.7</u>	59.5	16.0	7.2	488
MT 1809	VIDA/MO 09/3-4	177.4	28.8	<u>52.1</u>	58.4	16.0	5.5	443
MT 1811	MT1142/MTHW1150	176.8	32.4	<u>51.7</u>	60.1	15.5	17.2	479
MT 1815	MT1206/MT1203	177.0	32.6	<u>52.4</u>	59.2	16.0	0.3	449
MT 1818	VIDA/ULEN	177.2	30.0	48.7	58.5	16.5	22.3	425
MT 1819	VIDA/ULEN	175.9	30.0	41.4	58.8	16.8	<u>28.7</u>	508
MT 1821	VIDA/H0800103L	177.5	31.4	<u>50.2</u>	60.8	16.0	5.9	460
MT 1826	MT1142/MT1203	175.7	27.3	48.8	56.3	16.6	5.7	461
MT 1837	VIDA/MT1219	176.7	27.9	44.7	58.6	16.6	4.5	462
MT 1838	MT1206/MT172	<u>173.2</u>	29.4	<u>51.4</u>	58.3	15.9	9.6	450
MT 1840	VIDA/LIMAGR1	176.3	27.1	<u>50.1</u>	60.9	15.5	3.9	444
MT 1846	MT1053/SD4265	175.6	30.9	45.8	59.4	16.9	6.9	<u>555</u>
MT 1853	MT1053/MT1273	177.3	29.3	<u>52.7</u>	60.7	15.8	6.0	461
MT 1855	MT1053/MO8/3-4	179.4	32.0	<u>49.7</u>	58.6	15.9	5.0	483

2019 ADVANCED SPRING WHEAT NURSERY, HAVRE (DRY) (cont.)

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	SAW FYL CUT (%)	FALLING NUMBER (%)
MT 1856	MT1007/MT1203	175.4	29.7	47.6	58.2	16.7	3.2	455
MT 1857	MT1142/MT1273	175.2	31.2	<u>52.6</u>	59.5	16.1	9.6	474
MT 1861	MT1142/MT1264	174.9	30.0	<u>53.1</u>	<u>61.2</u>	16.4	5.4	489
MT 1862	MT1142/MT1264	174.7	28.0	<u>51.8</u>	59.1	16.1	4.6	469
MT 1863	MT1007/MT1273	175.4	28.9	48.2	59.0	16.5	3.7	446
MT 1865	VidaXConan(BC3F2)a2.1.3.6	177.5	30.9	<u>50.9</u>	58.2	15.4	1.8	447
MT 1866	VidaXConan(BC3F2)a4.6.8.3	177.2	29.6	<u>49.5</u>	59.6	15.8	1.9	443
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	175.6	30.2	46.9	59.3	16.9	-0.5	415
MT 1868	MT1053/LIMAGR1	176.4	28.8	<u>52.9</u>	58.8	14.9	12.2	423
MT 1870	VIDA/H0800103L	175.6	27.8	48.4	59.8	15.1	7.4	436
MT 1872	MT1007/M0 09/3-4	174.2	29.0	<u>54.4</u>	59.3	15.5	14.2	468
SYN 181	10S0059-28 (SY McCloud)	<u>172.6</u>	30.0	41.4	60.5	17.1	18.1	458
SYN 182	09S0306-24 SS (SY Longmire)	175.3	28.4	<u>50.4</u>	60.8	16.6	12.3	505
SYN 183	10S0176-18 CL (SY 611 CL2)	174.2	26.7	46.1	<u>61.1</u>	16.1	15.2	529
WB 171	WB 9590	174.3	24.2	45.9	60.3	16.5	9.2	479
WB 173	WB 9719	178.7	29.3	<u>49.6</u>	<u>61.6</u>	15.5	14.8	459
WB 143	WB 9668	<u>173.3</u>	25.1	41.2	60.2	<u>18.1</u>	5.3	491
LIMAGR 171	LCS REBEL(LNR 13-0594)	<u>173.4</u>	31.0	44.0	59.8	16.5	16.7	457
LIMAGR 191	LNR 1156	176.9	28.2	48.4	59.8	16.1	15.0	461
LIMAGR 192	LNR 1751	<u>174.0</u>	28.5	45.0	59.1	15.8	15.4	445
MT 1756	MT1253/12F5 1215	175.6	31.8	<u>53.1</u>	58.1	16.1	9.4	493
MT 1824	MT1206/MT1273	175.8	29.3	<u>53.3</u>	58.7	16.4	3.1	456
MT 1871	MT1007/TRVERSE	177.0	29.2	<u>51.6</u>	58.9	15.9	5.1	448
	MEAN	176.0	29.7	48.4	59.1	16.1	9.3	465
	C.V.	0.5	4.8	6.2	0.6	1.2	39.2	1REP
	PROBABILITY (ENTRY)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1REP
	LSD(0.05)	1.6	2.3	5.1	0.6	0.3	6.2	1REP
	LATTICE RE(%) <sup>1)</sup>	105.7	100.3	118.1	124.2	132.2	110.9	1REP

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

2019 ADVANCED SPRING WHEAT NURSERY, SIDNEY (DRY)

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
AGRIPR 151	SY Valda	175.0	29.8	88.9	63.3	13.9
AGRIPR 161	SY Rockford	175.7	32.4	<u>98.9</u>	62.2	13.0
AGRIPR 141	SY INGMAR	175.0	30.2	84.7	63.2	14.9
BZ 92413R	WB GUNNISON	174.0	29.5	73.5	63.4	13.2
BZ 996434	CORBIN	171.7	31.5	80.8	62.7	14.1
CI 10003	THATCHER	178.7	<u>41.0</u>	76.6	61.0	13.5
CI 13596	FORTUNA	175.3	36.5	70.8	62.2	13.3
ND 695	REEDER	173.3	33.7	88.1	63.4	14.0
PI 574642	MCNEAL	177.3	32.7	87.5	62.9	12.8
PI 633974	CHOTEAU	175.0	30.2	<u>91.8</u>	62.3	13.9
PI 642366	VIDA	175.0	30.3	86.3	62.5	13.2
PI 660981	DUCLAIR	<u>171.3</u>	30.6	86.9	62.3	13.1
PI 671855	EGAN	176.0	30.2	79.7	62.1	14.7
PI 676978	LANNING	<u>171.3</u>	29.6	84.3	62.8	14.9
PI 679964	NS PRESSER CLP	178.3	33.5	<u>91.7</u>	62.0	13.4
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	175.3	30.8	86.2	62.5	13.0
WSCIA	ALUM	175.3	31.5	89.1	63.6	12.6
PI 690450	DAGMAR	172.3	29.1	82.8	63.2	13.6
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	<u>171.0</u>	30.7	83.6	61.4	14.6
MT 1716	MT1274/RB07	<u>171.3</u>	30.3	91.4	63.0	13.4
MT 1736	12F5 2124/12SR 37	176.7	31.6	80.5	61.0	13.4
MT 1742	MT1274/12F5 827	<u>171.3</u>	30.2	84.3	63.0	13.0
MT 1743	MT1274/12F5 827	175.7	31.1	<u>92.6</u>	61.8	12.7
MT 1748	12F5 2124/IDO868	177.7	36.9	84.4	62.0	14.5
MT 1750	12SR93/12F5 1215	171.7	32.3	89.5	63.6	13.1
MT 1767	12SR225/12F5 827	172.0	30.6	90.6	61.9	13.6
MT 1775	12F5 827/12F5 2124	176.7	32.7	86.9	61.9	14.1
MT 1807	VIDA/MO8/3-4	172.0	32.3	91.0	62.3	12.8
MT 1809	VIDA/M0 09/3-4	175.0	30.3	<u>95.3</u>	62.2	13.5
MT 1811	MT1142/MTHW1150	175.0	33.5	80.8	63.0	13.4
MT 1815	MT1206/MT1203	176.0	33.1	89.0	62.8	13.2
MT 1818	VIDA/ULEN	175.0	33.1	91.1	63.4	14.5
MT 1819	VIDA/ULEN	173.3	31.6	87.2	63.4	13.8
MT 1821	VIDA/H0800103L	175.7	31.8	84.5	64.2	14.4
MT 1826	MT1142/MT1203	175.0	30.8	82.8	62.0	14.2
MT 1837	VIDA/MT1219	174.0	29.0	72.5	62.7	13.6
MT 1838	MT1206/MT172	172.0	29.6	87.9	61.7	13.5
MT 1840	VIDA/LIMAGR1	175.3	30.6	85.6	64.8	13.5
MT 1846	MT1053/SD4265	174.3	31.9	82.8	63.5	14.3
MT 1853	MT1053/MT1273	173.3	30.0	86.5	64.0	13.6
MT 1855	MT1053/MO8/3-4	175.7	35.2	<u>93.1</u>	63.2	13.5

2019 ADVANCED SPRING WHEAT NURSERY, SIDNEY (DRY) (cont.)

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
MT 1856	MT1007/MT1203	175.3	32.6	90.8	62.6	13.9
MT 1857	MT1142/MT1273	175.3	32.0	<u>96.3</u>	64.0	14.1
MT 1861	MT1142/MT1264	175.0	32.2	85.5	63.9	13.3
MT 1862	MT1142/MT1264	172.3	31.6	86.3	62.7	13.1
MT 1863	MT1007/MT1273	173.3	29.9	89.7	62.5	13.7
MT 1865	VidaXConan(BC3F2)a2.1.3.6	175.0	31.8	90.7	62.4	13.4
MT 1866	VidaXConan(BC3F2)a4.6.8.3	175.0	31.4	91.2	63.5	13.0
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	174.0	31.1	85.1	63.4	13.3
MT 1868	MT1053/LIMAGR1	175.0	31.0	89.1	62.1	12.5
MT 1870	VIDA/H0800103L	172.0	30.7	84.7	62.9	13.5
MT 1872	MT1007/M0 09/3-4	172.7	30.7	<u>92.0</u>	62.7	13.6
SYN 181	10S0059-28 (SY McCloud)	171.7	29.0	78.4	64.1	<u>15.5</u>
SYN 182	09S0306-24 SS (SY Longmire)	175.0	29.1	83.0	64.5	13.7
SYN 183	10S0176-18 CL (SY 611 CL2)	173.3	28.2	85.6	64.8	13.2
WB 171	WB 9590	172.0	26.5	85.4	63.3	14.3
WB 173	WB 9719	175.7	30.3	<u>97.8</u>	<u>66.4</u>	13.0
WB 143	WB 9668	<u>170.0</u>	25.7	74.7	62.8	<u>16.0</u>
LIMAGR 171	LCS REBEL(LNR 13-0594)	172.0	30.8	84.2	64.2	14.2
LIMAGR 191	LNR 1156	174.0	29.4	85.0	63.3	13.4
LIMAGR 192	LNR 1751	172.0	30.7	86.4	62.9	14.2
MT 1756	MT1253/12F5 1215	173.0	31.1	91.4	61.5	13.2
MT 1824	MT1206/MT1273	174.0	31.1	<u>92.0</u>	62.9	13.3
MT 1871	MT1007/TRVERSE	175.7	31.1	91.3	62.9	12.8
	MEAN	174.1	31.3	86.5	62.9	13.7
	C.V.	0.5	4.2	5.1	0.8	3.3
	PROBABILITY (ENTRY)	<0.001	<0.001	<0.001	<0.001	<0.001
	LSD(0.05)	1.4	2.1	7.5	0.8	0.8
	LATTICE RE(%) <sup>1)</sup>	101.1	101.6	128.6	87.7	266.8

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

2019 ADVANCED SPRING WHEAT NURSERY, SIDNEY (IRRIGATION)

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
AGRIPR 151	SY Valda	183.0	32.6	96.6	63.0	14.9
AGRIPR 161	SY Rockford	183.7	33.9	97.9	60.5	14.8
AGRIPR 141	SY INGMAR	183.0	32.7	95.5	62.4	15.5
BZ 92413R	WB GUNNISON	183.3	30.8	77.4	62.1	14.6
BZ 996434	CORBIN	181.0	32.6	82.3	61.8	15.7
CI 10003	THATCHER	186.0	<u>41.5</u>	65.5	60.2	16.4
CI 13596	FORTUNA	180.0	37.0	68.2	60.7	15.5
ND 695	REEDER	183.0	35.9	94.6	62.1	15.5
PI 574642	MCNEAL	183.3	33.8	90.7	61.0	15.7
PI 633974	CHOTEAU	181.7	32.5	82.7	60.9	15.0
PI 642366	VIDA	183.3	32.6	97.6	61.9	15.4
PI 660981	DUCLAIR	<u>179.3</u>	32.6	88.3	60.9	14.8
PI 671855	EGAN	182.7	32.3	88.2	61.0	15.8
PI 676978	LANNING	181.0	32.2	97.5	61.0	15.9
PI 679964	NS PRESSER CLP	184.3	34.0	89.5	60.7	15.1
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	183.3	32.1	80.7	60.5	16.0
WSCIA	ALUM	182.0	32.8	83.8	62.6	15.3
PI 690450	DAGMAR	180.0	32.3	95.6	61.9	15.9
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	<u>178.3</u>	32.3	83.6	60.0	16.3
MT 1716	MT1274/RB07	<u>179.3</u>	33.6	89.8	62.6	15.5
MT 1736	12F5 2124/12SR 37	183.3	32.2	79.7	59.7	15.8
MT 1742	MT1274/12F5 827	<u>178.3</u>	33.4	86.7	61.6	15.7
MT 1743	MT1274/12F5 827	183.3	34.1	84.3	60.1	15.9
MT 1748	12F5 2124/IDO868	184.3	37.1	92.7	60.5	16.0
MT 1750	12SR93/12F5 1215	<u>178.0</u>	34.3	93.6	62.7	14.8
MT 1767	12SR225/12F5 827	180.3	32.8	97.2	60.7	15.5
MT 1775	12F5 827/12F5 2124	182.7	34.7	89.8	60.1	15.9
MT 1807	VIDA/MO8/3-4	181.7	31.2	90.9	61.2	16.0
MT 1809	VIDA/M0 09/3-4	182.0	33.1	94.6	60.9	16.1
MT 1811	MT1142/MTHW1150	183.7	35.6	87.7	61.8	15.7
MT 1815	MT1206/MT1203	183.3	34.1	92.8	61.0	15.4
MT 1818	VIDA/ULEN	183.7	34.3	93.6	61.3	16.0
MT 1819	VIDA/ULEN	183.0	34.0	98.1	61.9	15.3
MT 1821	VIDA/H0800103L	183.3	33.7	73.4	62.1	16.6
MT 1826	MT1142/MT1203	182.3	33.0	87.6	60.4	16.7
MT 1837	VIDA/MT1219	182.7	29.8	81.2	60.3	16.5
MT 1838	MT1206/MT172	180.7	32.5	87.9	60.0	15.6
MT 1840	VIDA/LIMAGR1	182.0	32.3	86.4	63.1	14.5
MT 1846	MT1053/SD4265	182.0	34.5	89.0	62.6	<u>16.9</u>
MT 1853	MT1053/MT1273	183.0	34.3	96.1	62.3	15.7
MT 1855	MT1053/MO8/3-4	184.0	35.7	93.0	62.0	15.1

2019 ADVANCED SPRING WHEAT NURSERY, SIDNEY (IRRIGATION) (cont.)

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
MT 1856	MT1007/MT1203	182.7	34.0	83.7	60.6	16.6
MT 1857	MT1142/MT1273	182.3	33.9	<u>102.0</u>	62.4	14.6
MT 1861	MT1142/MT1264	183.0	32.3	91.5	62.8	16.2
MT 1862	MT1142/MT1264	182.3	32.9	87.6	60.8	15.3
MT 1863	MT1007/MT1273	183.0	32.8	90.3	61.2	16.3
MT 1865	VidaXConan(BC3F2)a2.1.3.6	183.3	34.2	82.4	61.3	15.6
MT 1866	VidaXConan(BC3F2)a4.6.8.3	181.3	34.0	<u>98.9</u>	62.5	15.4
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	180.0	33.2	94.6	62.2	14.9
MT 1868	MT1053/LIMAGR1	183.3	33.3	94.4	60.6	14.5
MT 1870	VIDA/H0800103L	180.3	31.2	75.4	61.1	15.7
MT 1872	MT1007/M0 09/3-4	<u>179.3</u>	32.3	96.2	61.7	14.9
SYN 181	10S0059-28 (SY McCloud)	180.0	33.1	92.1	63.2	15.8
SYN 182	09S0306-24 SS (SY Longmire)	182.0	31.3	<u>100.0</u>	62.8	15.4
SYN 183	10S0176-18 CL (SY 611 CL2)	181.3	29.3	<u>105.3</u>	63.4	14.8
WB 171	WB 9590	<u>179.3</u>	28.9	93.0	61.8	15.9
WB 173	WB 9719	183.3	30.7	97.0	<u>64.8</u>	15.0
WB 143	WB 9668	<u>178.0</u>	26.3	79.6	61.7	<u>17.4</u>
LIMAGR 171	LCS REBEL(LNR 13-0594)	<u>178.7</u>	34.2	90.7	63.3	15.8
LIMAGR 191	LNR 1156	181.0	31.2	<u>98.2</u>	62.9	14.6
LIMAGR 192	LNR 1751	180.7	31.7	95.0	61.8	15.4
MT 1756	MT1253/12F5 1215	181.3	32.8	93.3	59.6	15.0
MT 1824	MT1206/MT1273	181.0	32.3	<u>98.2</u>	61.8	14.7
MT 1871	MT1007/TRVERSE	183.0	33.4	92.4	61.9	15.5
	MEAN	181.9	33.1	89.9	61.6	15.6
	C.V.	0.6	3.1	4.7	0.9	2.8
	PROBABILITY (ENTRY)	<0.001	<0.001	<0.001	<0.001	<0.001
	LSD(0.05)	1.8	1.7	7.2	0.9	0.7
	LATTICE RE(%) <sup>1)</sup>	101.2	120.1	109.3	89.4	123.1

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

**2019 OVERALL AGRONOMIC SUMMARY FOR THE PRELIMINARY SPRING WHEAT NURSERY  
GROWN ACROSS MONTANA**

LINE	PEDIGREE	YIELD		TEST		HEADING		PLANT		PROTEIN	
		(BU/AC)	RANK	WEIGHT (LB/BU)	RANK	DATE (JULIAN)	RANK	HEIGHT (IN.)	RANK	(%)	RANK
MT 1901	MT1206 / KS112 (124)//MT1206	69.5	43	60.7	41	<u>176.9</u>	3	30.5	73	14.2	54
MT 1902	MT1316/MT1103	<u>73.7</u>	8	61.7	10	178.8	20	31.4	62	14.0	60
MT 1903	MT1142 / C-306 (100)//MT1206	69.3	44	60.4	52	179.9	44	33.3	16	14.1	56
MT 1904	VIDA/13500539	<u>77.6</u>	1	61.5	16	182.0	66	31.9	46	13.6	74
MT 1905	VIDA/13500539	<u>73.5</u>	11	59.9	63	182.3	72	31.0	71	13.6	75
MT 1906	VIDA/IDO1202S	<u>72.0</u>	26	60.6	45	182.8	75	31.3	65	13.8	71
MT 1907	MT1338/MT1103	<u>72.5</u>	20	60.9	36	180.6	54	33.1	19	13.5	77
MT 1908	MT1338/13500539	63.6	73	61.1	24	177.9	9	31.2	70	14.7	24
MT 1909	MT1338/13500539	<u>72.7</u>	19	62.0	7	178.3	11	30.3	75	14.2	55
MT 1910	MT1338/MT1348	<u>72.3</u>	22	61.6	15	179.5	35	32.6	30	14.1	58
MT 1911	MT1338MT1234	<u>72.2</u>	23	61.8	9	180.5	51	32.5	31	14.4	34
MT 1912	MT1338MT1234	66.6	60	61.2	21	182.9	76	32.2	40	14.7	20
MT 1913	MT1338MT1234	64.4	68	61.3	20	179.2	30	31.4	63	<u>15.9</u>	1
MT 1914	VIDA/MT0945	67.6	55	60.9	31	180.5	52	30.8	72	14.2	48
MT 1915	MT1203/EGAN	62.7	76	59.5	68	180.4	49	33.0	20	<u>15.7</u>	2
MT 1916	MT1338/SD4181	65.9	63	61.7	13	178.6	16	31.6	54	14.5	31
MT 1917	MT1338/SD4181	64.5	67	<u>63.3</u>	1	179.4	32	33.3	17	15.2	8
MT 1918	MT1338/BW483	61.0	80	61.1	26	178.8	23	32.5	32	15.0	13
MT 1919	MT1203/MT1236	<u>72.1</u>	24	58.7	78	179.1	27	30.0	77	<u>15.4</u>	5
MT 1920	MT1203/MT1236	70.3	39	60.0	60	178.4	12	30.1	76	14.2	47
MT 1921	MT1203/MT1236	66.3	61	59.7	65	179.1	25	31.6	55	14.8	18
MT 1922	VIDA/MT1236	<u>72.8</u>	16	60.1	58	180.8	57	31.6	56	13.9	66
MT 1923	VIDA/MT1236	71.6	29	59.2	72	179.5	38	32.6	28	15.0	14
MT 1924	MT1316/MN01333-A	65.5	64	62.3	4	<u>177.4</u>	5	31.2	68	14.3	42
MT 1925	VIDA/SD4264	68.5	51	<u>62.4</u>	3	179.6	39	32.3	36	13.8	68
MT 1926	MT1316/MT0945	<u>73.5</u>	12	59.2	73	180.7	55	31.4	59	13.5	78
MT 1927	MT1203/MT1234	<u>74.6</u>	3	59.1	74	181.8	64	31.3	66	14.6	29
MT 1928	MT1338/MT1319	69.0	47	61.0	27	<u>177.5</u>	7	31.2	69	14.0	61
MT 1929	MT1316/MT1319	<u>73.3</u>	14	60.2	55	178.5	15	33.6	10	14.2	49
MT 1930	MT1316/MT1319	68.0	53	60.6	46	<u>176.8</u>	1	30.5	74	14.4	35
MT 1931	MT1316/MT1319	<u>74.3</u>	5	61.2	22	178.7	19	31.6	57	14.3	43
MT 1932	VIDA/MT1319	<u>73.6</u>	10	59.7	66	178.5	14	31.7	53	14.2	46
MT 1933	VIDA/MT1319	70.6	37	61.4	18	178.9	24	31.8	48	13.9	67
MT 1934	VIDA/MT1319	<u>73.8</u>	7	60.9	32	178.7	18	32.2	39	13.9	63
MT 1935	VIDA/MT1319	<u>73.7</u>	9	60.7	42	180.0	47	32.0	45	13.8	69
MT 1936	MT1338/SD4299	<u>72.4</u>	21	61.6	14	182.2	71	34.5	4	14.1	57
MT 1937	MT1316/13500539	70.6	36	60.8	37	179.4	34	31.4	60	14.3	40
MT 1938	MT1316/13500539	<u>73.5</u>	13	60.6	47	179.5	36	31.8	49	14.3	44
MT 1939	MT1316/13500539	<u>75.9</u>	2	61.1	25	180.0	46	31.3	67	13.7	73
MT 1940	MT1316/SD4181	68.4	52	62.2	6	178.5	13	32.7	26	14.9	16
MT 1941	MT1316/MT1348	71.8	28	60.8	39	179.8	43	32.9	22	14.6	25
MT 1942	MT1316/MT1348	71.0	32	60.9	33	177.9	10	29.2	79	14.2	50
MT 1943	MT1203/9263	<u>73.2</u>	15	60.2	56	182.2	69	34.1	5	13.6	76
MT 1944	MT1203/9263	66.8	59	60.0	61	<u>177.4</u>	6	28.2	81	14.5	33

**2019 OVERALL AGRONOMIC SUMMARY FOR THE PRELIMINARY SPRING WHEAT NURSERY  
GROWN ACROSS MONTANA (CONTINUED)**

LINE	PEDIGREE	YIELD		TEST		HEADING		PLANT		PROTEIN	
		(BU/AC)	RANK	WEIGHT (LB/BU)	RANK	DATE (JULIAN)	RANK	HEIGHT (IN.)	RANK	(%)	RANK
MT 1945	MT1203/9263	67.9	54	61.0	29	179.5	37	32.7	27	13.8	70
MT 1946	VIDA/BW483	69.6	41	<u>62.4</u>	2	181.5	62	32.8	25	14.4	36
MT 1947	MT1203/MT1340	68.6	50	60.4	51	178.6	17	32.0	43	14.5	32
MT 1948	MT1203/MT1340	68.7	49	60.0	62	180.5	50	29.4	78	15.1	10
MT 1949	MT1203/MT1340	69.3	45	60.8	40	179.4	31	29.0	80	15.1	11
MT 1950	MT1203/MT1340	71.3	30	61.0	28	178.8	21	32.0	42	14.8	17
MT 1951	MT1316/EGAN	<u>72.8</u>	17	58.9	76	180.1	48	33.7	9	<u>15.4</u>	6
MT 1952	MT1316/SD4299	63.6	72	61.4	19	181.4	60	32.4	33	14.4	39
MT 1953	MT1316/SD4299	66.9	57	59.8	64	<u>177.5</u>	8	32.4	34	13.7	72
MT 1954	MT1338/MN01333-A	57.4	81	61.9	8	179.6	40	33.4	13	14.8	19
MT 1955	MT1316/SD4264	<u>72.7</u>	18	61.7	11	179.9	45	31.7	52	14.0	62
MT 1956	MT1338/SD3997	<u>72.0</u>	25	58.4	81	183.0	77	33.0	21	14.2	51
MT 1957	MT1338/IDO1202S	70.7	34	60.8	38	180.7	56	32.2	38	14.4	38
MT 1958	MT1338/MT1348	65.4	65	62.3	5	<u>177.2</u>	4	33.4	14	14.7	22
MT 1959	0249XExGlupro	<u>74.3</u>	6	60.5	48	179.1	26	31.7	51	14.6	30
MT 1960	0249XExGlupro	70.0	40	61.0	30	179.1	28	31.4	64	14.6	27
MT 1961	0249XExGlupro	<u>74.6</u>	4	60.9	34	179.1	29	31.4	61	15.0	12
MT 1962	08521XMcNeal/Glupro	61.8	77	60.7	44	180.6	53	32.8	24	15.3	7
MT 1963	Duclair x McNeal/Glupro	69.6	42	59.3	70	179.7	42	32.3	35	14.7	23
MT 1964	Duclair x McNeal/Glupro	67.1	56	59.3	71	178.8	22	32.3	37	15.2	9
MT 1965	Duclair x McNeal/Glupro	70.7	35	58.8	77	179.4	33	33.3	15	15.0	15
MT 1966	VIDA/SxD3 (1052)	66.8	58	61.2	23	181.4	61	33.4	11	14.7	21
MT 1967	VIDA/SxD3 (1052)	71.0	33	61.5	17	183.7	80	33.4	12	14.2	52
MT 1968	VIDA/SxD3 (1052)	61.7	78	60.9	35	182.4	73	31.8	50	<u>15.5</u>	3
MT 1969	VIDA/SxD19 (1130)	63.5	74	59.1	75	182.5	74	34.8	3	14.3	41
MT 1970	VIDA/SxD19 (1130)	66.0	62	60.2	57	183.1	78	<u>38.0</u>	2	14.2	53
MT 1971	VIDA/SxD31 (1310)	71.1	31	60.1	59	181.7	63	32.1	41	14.0	59
MT 1972	VIDA/SxD47 (1364)	63.9	70	59.6	67	183.5	79	33.9	6	13.1	80
MT 1973	VIDA/SxD47 (1364)	69.2	46	58.5	79	185.2	81	33.1	18	13.1	81
MT 1974	VIDA/SxD53 (1393)	63.8	71	58.5	80	<u>176.8</u>	2	32.9	23	14.4	37
MT 1975	VIDA/SxD53 (1393)	63.2	75	59.4	69	179.6	41	33.9	8	14.6	26
MT 1976	VIDA/SxD65 (1442)	64.8	66	60.5	49	181.8	65	31.9	47	<u>15.5</u>	4
CI 13596	FORTUNA	61.6	79	60.4	53	182.1	67	<u>38.9</u>	1	13.9	65
PI 574642	MCNEAL	64.3	69	60.5	50	182.2	70	32.6	29	13.9	64
ND 695	REEDER	70.4	38	61.7	12	181.3	58	33.9	7	14.3	45
PI 633974	CHOTEAU	68.7	48	60.3	54	181.3	59	31.5	58	14.6	28
PI 642366	VIDA	<u>71.9</u>	27	60.7	43	182.2	68	32.0	44	13.5	79
	MEAN	69.2		60.6		180.0		32.2		14.4	
	C.V.	6.0		1.0		0.4		3.0		2.9	
	F-VALUE(LINE)	<0.001		<0.001		<0.001		<0.001		<0.001	
	LSD(0.05)	5.8		0.9		1.1		1.3		0.6	

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

**2019 GRAIN YIELD (BU/AC) SUMMARY FOR THE PRELIMINARY SPRING WHEAT NURSERY GROWN  
ON FOUR LOCATIONS ACROSS MONTANA**

LINE	VARIETY/ PEDIGREE	BOZEMAN	MOCCASIN	HAVRE	SIDNEY	AVG.	RANK
MT 1901	MT1206 / KS112 (124)//MT1206	92.5	52.4	50.3	82.9	69.5	43
MT 1902	MT1316/MT1103	92.6	57.5	52.3	<u>92.4</u>	<u>73.7</u>	8
MT 1903	MT1142 / C-306 (100)//MT1206	87.5	48.7	54.8	86.2	69.3	44
MT 1904	VIDA/13500539	<u>100.1</u>	<u>62.8</u>	50.4	<u>97.0</u>	<u>77.6</u>	1
MT 1905	VIDA/13500539	95.4	55.5	<u>59.7</u>	83.4	<u>73.5</u>	11
MT 1906	VIDA/IDO1202S	88.2	53.8	53.1	<u>92.8</u>	<u>72.0</u>	26
MT 1907	MT1338/MT1103	96.7	49.5	53.7	<u>90.1</u>	<u>72.5</u>	20
MT 1908	MT1338/13500539	85.6	48.0	47.2	73.6	63.6	73
MT 1909	MT1338/13500539	91.2	59.1	53.5	86.8	<u>72.7</u>	19
MT 1910	MT1338/MT1348	93.8	56.7	54.3	84.4	<u>72.3</u>	22
MT 1911	MT1338MT1234	90.3	53.5	<u>56.3</u>	<u>88.6</u>	<u>72.2</u>	23
MT 1912	MT1338MT1234	81.2	54.2	49.7	81.3	66.6	60
MT 1913	MT1338MT1234	78.9	48.1	49.8	80.9	64.4	68
MT 1914	VIDA/MT0945	82.9	47.8	53.2	86.6	67.6	55
MT 1915	MT1203/EGAN	80.0	50.7	43.0	77.0	62.7	76
MT 1916	MT1338/SD4181	82.8	46.8	48.3	85.7	65.9	63
MT 1917	MT1338/SD4181	82.8	52.7	45.0	77.3	64.5	67
MT 1918	MT1338/BW483	74.1	48.7	42.0	79.1	61.0	80
MT 1919	MT1203/MT1236	95.5	55.4	49.3	<u>88.0</u>	<u>72.1</u>	24
MT 1920	MT1203/MT1236	90.8	51.6	52.2	86.5	70.3	39
MT 1921	MT1203/MT1236	83.5	50.9	48.1	82.8	66.3	61
MT 1922	VIDA/MT1236	88.8	56.1	53.0	<u>93.4</u>	<u>72.8</u>	16
MT 1923	VIDA/MT1236	93.4	54.9	49.2	<u>88.9</u>	71.6	29
MT 1924	MT1316/MN01333-A	83.7	54.1	41.6	82.5	65.5	64
MT 1925	VIDA/SD4264	85.2	50.2	47.7	<u>90.9</u>	68.5	51
MT 1926	MT1316/MT0945	<u>105.7</u>	51.6	51.3	85.4	<u>73.5</u>	12
MT 1927	MT1203/MT1234	94.8	56.2	53.1	<u>94.4</u>	<u>74.6</u>	3
MT 1928	MT1338/MT1319	96.0	52.0	47.5	80.6	69.0	47
MT 1929	MT1316/MT1319	93.7	59.1	48.6	<u>91.6</u>	<u>73.3</u>	14
MT 1930	MT1316/MT1319	90.9	49.9	47.3	83.8	68.0	53
MT 1931	MT1316/MT1319	91.6	<u>66.9</u>	49.6	<u>89.1</u>	<u>74.3</u>	5
MT 1932	VIDA/MT1319	91.0	<u>60.1</u>	52.6	<u>90.8</u>	<u>73.6</u>	10
MT 1933	VIDA/MT1319	85.8	54.8	53.9	<u>87.9</u>	70.6	37
MT 1934	VIDA/MT1319	90.6	55.9	53.3	<u>95.2</u>	<u>73.8</u>	7
MT 1935	VIDA/MT1319	93.7	59.3	53.5	<u>88.3</u>	<u>73.7</u>	9
MT 1936	MT1338/SD4299	86.2	56.4	51.7	<u>95.1</u>	<u>72.4</u>	21
MT 1937	MT1316/13500539	91.8	58.6	48.6	83.5	70.6	36
MT 1938	MT1316/13500539	90.8	<u>60.3</u>	52.8	<u>90.0</u>	<u>73.5</u>	13
MT 1939	MT1316/13500539	93.4	<u>59.9</u>	<u>57.4</u>	<u>92.9</u>	<u>75.9</u>	2
MT 1940	MT1316/SD4181	86.9	53.5	46.9	86.3	68.4	52
MT 1941	MT1316/MT1348	95.0	<u>60.3</u>	46.3	85.6	71.8	28
MT 1942	MT1316/MT1348	90.9	57.3	48.5	<u>87.3</u>	71.0	32
MT 1943	MT1203/9263	86.1	<u>63.9</u>	54.4	<u>88.2</u>	<u>73.2</u>	15
MT 1944	MT1203/9263	90.9	51.2	47.7	77.2	66.8	59

**2019 GRAIN YIELD (BU/AC) SUMMARY FOR THE PRELIMINARY SPRING WHEAT NURSERY GROWN  
ON FOUR LOCATIONS ACROSS MONTANA (CONTINUED)**

LINE	VARIETY/ PEDIGREE	BOZEMAN	MOCCASIN	HAVRE	SIDNEY	AVG.	RANK
MT 1945	MT1203/9263	88.2	53.8	50.3	79.1	67.9	54
MT 1946	VIDA/BW483	87.6	48.0	52.7	<u>90.2</u>	69.6	41
MT 1947	MT1203/MT1340	81.6	57.8	51.0	84.0	68.6	50
MT 1948	MT1203/MT1340	83.1	51.6	52.6	<u>87.5</u>	68.7	49
MT 1949	MT1203/MT1340	87.4	52.3	48.9	<u>88.4</u>	69.3	45
MT 1950	MT1203/MT1340	82.6	<u>64.6</u>	51.1	86.9	71.3	30
MT 1951	MT1316/EGAN	92.9	57.0	48.4	<u>92.7</u>	<u>72.8</u>	17
MT 1952	MT1316/SD4299	77.5	50.2	47.6	79.2	63.6	72
MT 1953	MT1316/SD4299	88.3	53.4	45.6	80.1	66.9	57
MT 1954	MT1338/MN01333-A	77.8	45.4	36.5	69.8	57.4	81
MT 1955	MT1316/SD4264	95.5	58.9	52.8	83.7	<u>72.7</u>	18
MT 1956	MT1338/SD3997	<u>99.6</u>	53.8	48.6	86.1	<u>72.0</u>	25
MT 1957	MT1338/IDO1202S	87.0	56.8	54.9	84.2	70.7	34
MT 1958	MT1338/MT1348	84.6	52.5	44.5	79.8	65.4	65
MT 1959	0249XExGlupro	91.2	<u>67.9</u>	54.1	84.0	<u>74.3</u>	6
MT 1960	0249XExGlupro	95.6	51.1	50.4	83.0	70.0	40
MT 1961	0249XExGlupro	97.5	<u>62.3</u>	51.5	<u>87.0</u>	<u>74.6</u>	4
MT 1962	08521XMcNeal/Glupro	76.0	53.0	45.7	72.3	61.8	77
MT 1963	Duclair x McNeal/Glupro	95.5	51.5	52.0	79.3	69.6	42
MT 1964	Duclair x McNeal/Glupro	87.1	51.3	49.0	80.8	67.1	56
MT 1965	Duclair x McNeal/Glupro	94.6	50.2	49.4	<u>88.7</u>	70.7	35
MT 1966	VIDA/SxD3 (1052)	71.6	53.2	51.7	<u>90.6</u>	66.8	58
MT 1967	VIDA/SxD3 (1052)	91.7	51.8	51.6	<u>88.7</u>	71.0	33
MT 1968	VIDA/SxD3 (1052)	77.2	50.5	45.2	73.8	61.7	78
MT 1969	VIDA/SxD19 (1130)	84.5	49.5	43.1	76.7	63.5	74
MT 1970	VIDA/SxD19 (1130)	83.4	47.4	44.8	<u>88.2</u>	66.0	62
MT 1971	VIDA/SxD31 (1310)	89.5	52.0	50.8	<u>92.2</u>	71.1	31
MT 1972	VIDA/SxD47 (1364)	83.1	42.5	46.8	83.1	63.9	70
MT 1973	VIDA/SxD47 (1364)	84.9	46.8	52.4	<u>92.6</u>	69.2	46
MT 1974	VIDA/SxD53 (1393)	79.8	53.0	42.5	79.7	63.8	71
MT 1975	VIDA/SxD53 (1393)	81.3	48.6	44.9	77.9	63.2	75
MT 1976	VIDA/SxD65 (1442)	81.6	52.9	43.8	81.0	64.8	66
CI 13596	FORTUNA	84.3	43.2	47.0	71.9	61.6	79
PI 574642	MCNEAL	72.6	49.5	48.6	86.6	64.3	69
ND 695	REEDER	85.3	55.4	50.1	<u>90.6</u>	70.4	38
PI 633974	CHOTEAU	82.3	52.1	53.8	86.7	68.7	48
PI 642366	VIDA	91.5	52.4	<u>55.4</u>	<u>88.3</u>	<u>71.9</u>	27
	MEAN	87.9	53.7	49.8	85.3	69.2	
	C.V.	5.4	9.0	5.6	7.1	6.0	
	PROBABILITY (ENTRY)	<0.001	<0.001	<0.001	<0.001	<0.001	
	LSD(0.05)	8.0	8.3	4.8	10.1	5.8	
	LATTICE RE(%) <sup>1)</sup>	112.8	131.5	173.9	109.0	-	

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

**2019 TEST WEIGHT (LB/BU) SUMMARY FOR THE PRELIMINARY SPRING WHEAT NURSERY GROWN  
ON FOUR LOCATIONS ACROSS MONTANA**

LINE	VARIETY/ PEDIGREE	BOZEMAN	MOCCASIN	HAVRE	SIDNEY	AVG.	RANK
MT 1901	MT1206 / KS112 (124)//MT1206	59.9	60.8	59.5	62.7	60.7	41
MT 1902	MT1316/MT1103	59.7	62.3	61.4	63.4	61.7	10
MT 1903	MT1142 / C-306 (100)//MT1206	59.9	60.0	59.2	62.4	60.4	52
MT 1904	VIDA/13500539	60.5	61.8	60.7	63.0	61.5	16
MT 1905	VIDA/13500539	58.5	60.1	59.1	61.8	59.9	63
MT 1906	VIDA/IDO1202S	60.1	59.7	59.8	62.6	60.6	45
MT 1907	MT1338/MT1103	60.1	60.6	59.5	63.2	60.9	36
MT 1908	MT1338/13500539	<u>59.1</u>	61.7	60.6	63.0	61.1	24
MT 1909	MT1338/13500539	60.0	62.8	61.4	63.8	62.0	7
MT 1910	MT1338/MT1348	60.5	62.0	60.7	63.2	61.6	15
MT 1911	MT1338MT1234	60.8	61.9	60.4	64.1	61.8	9
MT 1912	MT1338MT1234	60.1	61.1	59.8	63.7	61.2	21
MT 1913	MT1338MT1234	60.2	61.6	60.2	63.0	61.3	20
MT 1914	VIDA/MT0945	59.9	60.3	60.4	63.1	60.9	31
MT 1915	MT1203/EGAN	59.2	59.0	57.8	61.9	59.5	68
MT 1916	MT1338/SD4181	60.3	62.1	60.8	63.5	61.7	13
MT 1917	MT1338/SD4181	61.8	<u>64.2</u>	<u>62.1</u>	<u>64.9</u>	<u>63.3</u>	1
MT 1918	MT1338/BW483	59.9	60.3	61.1	62.9	61.1	26
MT 1919	MT1203/MT1236	58.2	58.4	57.4	60.9	58.7	78
MT 1920	MT1203/MT1236	59.0	60.3	58.7	61.9	60.0	60
MT 1921	MT1203/MT1236	58.7	59.7	58.5	62.0	59.7	65
MT 1922	VIDA/MT1236	59.3	59.4	59.4	62.4	60.1	58
MT 1923	VIDA/MT1236	58.4	59.0	58.1	61.3	59.2	72
MT 1924	MT1316/MN01333-A	60.9	62.3	61.1	<u>64.8</u>	62.3	4
MT 1925	VIDA/SD4264	61.3	62.0	61.5	<u>64.6</u>	<u>62.4</u>	3
MT 1926	MT1316/MT0945	59.5	57.4	58.4	61.5	59.2	73
MT 1927	MT1203/MT1234	59.0	58.5	57.3	61.7	59.1	74
MT 1928	MT1338/MT1319	59.6	62.0	60.2	62.3	61.0	27
MT 1929	MT1316/MT1319	59.9	59.4	59.1	62.3	60.2	55
MT 1930	MT1316/MT1319	58.8	61.1	60.0	62.3	60.6	46
MT 1931	MT1316/MT1319	59.8	62.0	60.1	62.7	61.2	22
MT 1932	VIDA/MT1319	58.0	59.8	59.1	62.0	59.7	66
MT 1933	VIDA/MT1319	60.7	61.3	60.3	63.3	61.4	18
MT 1934	VIDA/MT1319	59.9	61.4	60.1	62.3	60.9	32
MT 1935	VIDA/MT1319	59.9	60.6	59.9	62.4	60.7	42
MT 1936	MT1338/SD4299	60.2	62.4	60.6	63.3	61.6	14
MT 1937	MT1316/13500539	59.7	61.0	59.6	63.0	60.8	37
MT 1938	MT1316/13500539	58.8	61.5	59.3	62.6	60.6	47
MT 1939	MT1316/13500539	59.5	61.9	60.0	62.9	61.1	25
MT 1940	MT1316/SD4181	61.7	61.7	60.9	64.5	62.2	6
MT 1941	MT1316/MT1348	59.6	61.2	59.7	62.6	60.8	39
MT 1942	MT1316/MT1348	59.4	61.3	60.1	62.9	60.9	33
MT 1943	MT1203/9263	59.7	59.6	59.0	62.3	60.2	56
MT 1944	MT1203/9263	58.2	60.4	59.7	61.6	60.0	61

**2019 TEST WEIGHT (LB/BU) SUMMARY FOR THE PRELIMINARY SPRING WHEAT NURSERY GROWN  
ON FOUR LOCATIONS ACROSS MONTANA (CONTINUED)**

LINE	VARIETY/ PEDIGREE	BOZEMAN	MOCCASIN	HAVRE	SIDNEY	AVG.	RANK
MT 1945	MT1203/9263	60.5	60.6	60.1	62.6	61.0	29
MT 1946	VIDA/BW483	<u>62.3</u>	62.2	60.9	64.3	<u>62.4</u>	2
MT 1947	MT1203/MT1340	60.1	60.4	58.9	62.2	60.4	51
MT 1948	MT1203/MT1340	59.3	59.2	58.9	62.4	60.0	62
MT 1949	MT1203/MT1340	60.2	60.5	59.9	62.5	60.8	40
MT 1950	MT1203/MT1340	60.0	60.9	60.0	63.1	61.0	28
MT 1951	MT1316/EGAN	59.1	58.3	56.8	61.2	58.9	76
MT 1952	MT1316/SD4299	60.5	60.3	60.6	64.0	61.4	19
MT 1953	MT1316/SD4299	57.9	60.3	59.1	61.7	59.8	64
MT 1954	MT1338/MN01333-A	60.3	63.2	60.3	63.6	61.9	8
MT 1955	MT1316/SD4264	60.9	61.9	60.5	63.5	61.7	11
MT 1956	MT1338/SD3997	58.2	58.3	57.2	59.9	58.4	81
MT 1957	MT1338/IDO1202S	59.7	61.2	59.9	62.4	60.8	38
MT 1958	MT1338/MT1348	61.3	63.1	61.1	63.5	62.3	5
MT 1959	0249XExGlupro	59.1	60.9	59.9	62.2	60.5	48
MT 1960	0249XExGlupro	59.7	61.5	60.1	62.5	61.0	30
MT 1961	0249XExGlupro	59.8	61.5	59.8	62.5	60.9	34
MT 1962	08521XMcNeal/Glupro	59.8	61.3	59.0	62.5	60.7	44
MT 1963	Duclair x McNeal/Glupro	59.1	58.4	57.9	61.9	59.3	70
MT 1964	Duclair x McNeal/Glupro	59.2	58.1	58.0	61.7	59.3	71
MT 1965	Duclair x McNeal/Glupro	58.6	57.9	57.2	61.4	58.8	77
MT 1966	VIDA/SxD3 (1052)	59.9	61.4	60.1	63.2	61.2	23
MT 1967	VIDA/SxD3 (1052)	61.5	60.9	59.9	63.7	61.5	17
MT 1968	VIDA/SxD3 (1052)	60.7	60.8	58.9	63.2	60.9	35
MT 1969	VIDA/SxD19 (1130)	58.8	58.5	57.2	62.0	59.1	75
MT 1970	VIDA/SxD19 (1130)	59.6	59.6	58.7	62.7	60.2	57
MT 1971	VIDA/SxD31 (1310)	59.2	59.5	58.9	62.6	60.1	59
MT 1972	VIDA/SxD47 (1364)	59.4	58.3	58.5	62.1	59.6	67
MT 1973	VIDA/SxD47 (1364)	59.9	56.2	56.3	61.7	58.5	79
MT 1974	VIDA/SxD53 (1393)	56.7	58.7	58.0	60.5	58.5	80
MT 1975	VIDA/SxD53 (1393)	58.0	59.7	58.2	61.6	59.4	69
MT 1976	VIDA/SxD65 (1442)	59.8	60.8	58.8	62.4	60.5	49
CI 13596	FORTUNA	60.5	59.6	58.8	62.5	60.4	53
PI 574642	MCNEAL	60.2	59.7	59.0	62.9	60.5	50
ND 695	REEDER	61.2	61.8	60.4	63.4	61.7	12
PI 633974	CHOTEAU	58.8	60.8	59.2	62.5	60.3	54
PI 642366	VIDA	59.6	60.1	60.3	62.7	60.7	43
	MEAN	58.6	60.6	59.5	62.6	60.6	
	C.V.	1REP	1.0	0.6	0.4	1.0	
	PROBABILITY (ENTRY)	1REP	<0.001	<0.001	<0.001	<0.001	
	LSD(0.05)	1REP	1.0	0.6	0.4	0.9	
	LATTICE RE(%) <sup>1)</sup>	1REP	155.9	122.2	106.1	-	

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

**2019 HEADING DATE (175=JUNE 24) SUMMARY FOR THE PRELIMINARY SPRING WHEAT NURSERY  
GROWN ON FOUR LOCATIONS ACROSS MONTANA**

LINE	VARIETY/ PEDIGREE	BOZEMAN	MOCCASIN	HAVRE	SIDNEY	AVG.	RANK
MT 1901	MT1206 / KS112 (124)//MT1206	<u>186.5</u>	<u>180.7</u>	<u>170.4</u>	<u>170.0</u>	<u>176.9</u>	3
MT 1902	MT1316/MT1103	189.6	182.0	172.1	171.3	178.8	20
MT 1903	MT1142 / C-306 (100)//MT1206	189.1	183.7	174.7	172.0	179.9	44
MT 1904	VIDA/13500539	192.3	183.7	177.1	175.0	182.0	66
MT 1905	VIDA/13500539	191.4	184.7	177.4	175.7	182.3	72
MT 1906	VIDA/IDO1202S	193.5	185.3	177.3	175.0	182.8	75
MT 1907	MT1338/MT1103	191.3	183.0	175.9	172.3	180.6	54
MT 1908	MT1338/13500539	188.1	<u>181.3</u>	171.6	<u>170.7</u>	177.9	9
MT 1909	MT1338/13500539	187.5	<u>181.3</u>	172.6	171.7	178.3	11
MT 1910	MT1338/MT1348	189.4	<u>182.7</u>	173.8	172.0	179.5	35
MT 1911	MT1338MT1234	190.5	184.0	174.1	173.3	180.5	51
MT 1912	MT1338MT1234	192.2	184.3	178.2	176.7	182.9	76
MT 1913	MT1338MT1234	188.7	<u>181.0</u>	175.1	172.0	179.2	30
MT 1914	VIDA/MT0945	190.8	183.3	175.0	173.0	180.5	52
MT 1915	MT1203/EGAN	191.5	182.3	175.0	172.7	180.4	49
MT 1916	MT1338/SD4181	187.8	181.7	172.8	172.0	178.6	16
MT 1917	MT1338/SD4181	189.2	182.7	173.7	172.0	179.4	32
MT 1918	MT1338/BW483	188.0	182.0	173.2	172.0	178.8	23
MT 1919	MT1203/MT1236	188.8	182.7	173.3	171.7	179.1	27
MT 1920	MT1203/MT1236	187.8	<u>181.0</u>	173.2	171.7	178.4	12
MT 1921	MT1203/MT1236	188.9	182.0	173.0	172.3	179.1	25
MT 1922	VIDA/MT1236	190.5	183.3	175.2	174.3	180.8	57
MT 1923	VIDA/MT1236	190.1	181.7	174.3	172.0	179.5	38
MT 1924	MT1316/MN01333-A	<u>186.5</u>	<u>181.3</u>	171.3	<u>170.3</u>	<u>177.4</u>	5
MT 1925	VIDA/SD4264	189.4	183.0	173.6	172.3	179.6	39
MT 1926	MT1316/MT0945	191.3	183.3	175.4	172.7	180.7	55
MT 1927	MT1203/MT1234	192.2	184.0	175.7	175.3	181.8	64
MT 1928	MT1338/MT1319	187.7	<u>180.0</u>	171.1	<u>171.0</u>	<u>177.5</u>	7
MT 1929	MT1316/MT1319	189.8	<u>180.7</u>	171.9	171.7	178.5	15
MT 1930	MT1316/MT1319	187.5	<u>180.3</u>	<u>169.2</u>	<u>170.0</u>	<u>176.8</u>	1
MT 1931	MT1316/MT1319	189.1	<u>181.0</u>	172.8	172.0	178.7	19
MT 1932	VIDA/MT1319	188.2	<u>181.3</u>	172.8	171.7	178.5	14
MT 1933	VIDA/MT1319	189.4	<u>181.3</u>	173.4	171.3	178.9	24
MT 1934	VIDA/MT1319	189.7	<u>181.0</u>	172.3	171.7	178.7	18
MT 1935	VIDA/MT1319	191.8	182.0	175.3	<u>171.0</u>	180.0	47
MT 1936	MT1338/SD4299	192.8	184.3	176.8	175.0	182.2	71
MT 1937	MT1316/13500539	189.9	<u>181.3</u>	174.2	172.3	179.4	34
MT 1938	MT1316/13500539	189.6	181.7	174.7	172.0	179.5	36
MT 1939	MT1316/13500539	190.8	182.0	174.8	172.3	180.0	46
MT 1940	MT1316/SD4181	189.1	<u>181.3</u>	172.2	171.3	178.5	13
MT 1941	MT1316/MT1348	191.3	182.0	173.5	172.3	179.8	43
MT 1942	MT1316/MT1348	187.9	<u>181.0</u>	172.1	<u>170.7</u>	177.9	10
MT 1943	MT1203/9263	193.5	185.0	176.3	174.0	182.2	69
MT 1944	MT1203/9263	<u>186.9</u>	<u>181.3</u>	<u>170.8</u>	<u>170.7</u>	<u>177.4</u>	6

**2019 HEADING DATE (175=JUNE 24) SUMMARY FOR THE PRELIMINARY SPRING WHEAT NURSERY  
GROWN ON FOUR LOCATIONS ACROSS MONTANA (CONTINUED)**

LINE	VARIETY/ PEDIGREE	BOZEMAN	MOCCASIN	HAVRE	SIDNEY	AVG.	RANK
MT 1945	MT1203/9263	191.0	182.0	173.3	171.7	179.5	37
MT 1946	VIDA/BW483	191.6	183.7	175.8	175.0	181.5	62
MT 1947	MT1203/MT1340	188.7	<u>181.0</u>	172.9	171.7	178.6	17
MT 1948	MT1203/MT1340	190.9	182.7	175.5	172.7	180.5	50
MT 1949	MT1203/MT1340	189.5	182.7	173.3	172.0	179.4	31
MT 1950	MT1203/MT1340	189.2	182.0	172.8	<u>171.0</u>	178.8	21
MT 1951	MT1316/EGAN	191.4	182.0	174.1	173.0	180.1	48
MT 1952	MT1316/SD4299	192.6	183.3	175.8	174.0	181.4	60
MT 1953	MT1316/SD4299	187.5	<u>180.3</u>	171.2	<u>171.0</u>	<u>177.5</u>	8
MT 1954	MT1338/MN01333-A	190.4	183.0	172.9	172.0	179.6	40
MT 1955	MT1316/SD4264	191.1	182.0	173.9	172.7	179.9	45
MT 1956	MT1338/SD3997	193.2	185.7	177.4	175.7	183.0	77
MT 1957	MT1338/IDO1202S	190.6	182.7	174.4	175.0	180.7	56
MT 1958	MT1338/MT1348	<u>186.4</u>	<u>180.3</u>	171.6	<u>170.3</u>	<u>177.2</u>	4
MT 1959	0249XExGlupro	189.0	181.7	173.7	172.0	179.1	26
MT 1960	0249XExGlupro	189.5	182.3	173.0	171.7	179.1	28
MT 1961	0249XExGlupro	189.4	182.0	173.1	172.0	179.1	29
MT 1962	08521XMcNeal/Glupro	190.0	183.0	175.6	173.7	180.6	53
MT 1963	Duclair x McNeal/Glupro	189.9	182.7	174.1	172.0	179.7	42
MT 1964	Duclair x McNeal/Glupro	189.0	182.0	172.4	171.7	178.8	22
MT 1965	Duclair x McNeal/Glupro	189.3	181.7	174.6	172.0	179.4	33
MT 1966	VIDA/SxD3 (1052)	192.1	183.0	175.3	175.3	181.4	61
MT 1967	VIDA/SxD3 (1052)	190.6	187.0	180.0	177.3	183.7	80
MT 1968	VIDA/SxD3 (1052)	193.1	184.7	176.5	175.3	182.4	73
MT 1969	VIDA/SxD19 (1130)	192.5	185.0	176.8	175.7	182.5	74
MT 1970	VIDA/SxD19 (1130)	193.4	185.3	177.4	176.3	183.1	78
MT 1971	VIDA/SxD31 (1310)	192.1	184.0	177.1	173.7	181.7	63
MT 1972	VIDA/SxD47 (1364)	194.1	185.7	178.0	176.3	183.5	79
MT 1973	VIDA/SxD47 (1364)	194.5	187.7	180.5	178.0	185.2	81
MT 1974	VIDA/SxD53 (1393)	<u>185.8</u>	<u>180.3</u>	171.1	<u>170.0</u>	<u>176.8</u>	2
MT 1975	VIDA/SxD53 (1393)	189.4	182.3	174.7	172.0	179.6	41
MT 1976	VIDA/SxD65 (1442)	192.8	182.7	176.4	175.3	181.8	65
CI 13596	FORTUNA	192.5	183.3	177.2	175.3	182.1	67
PI 574642	MCNEAL	193.0	184.0	175.8	176.0	182.2	70
ND 695	REEDER	193.0	183.7	176.3	172.0	181.3	58
PI 633974	CHOTEAU	190.6	183.7	176.0	175.0	181.3	59
PI 642366	VIDA	192.5	183.7	177.2	175.3	182.2	68
	MEAN	190.2	182.6	174.4	172.9	180.0	
	C.V.	0.5	0.5	0.6	0.4	0.4	
	PROBABILITY (ENTRY)	<0.001	<0.001	<0.001	<0.001	<0.001	
	LSD(0.05)	1.5	1.5	1.7	1.2	1.1	
	LATTICE RE(%) <sup>1)</sup>	129.7	98.5	107.2	102.2	-	

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

**2019 PLANT HEIGHT (INCHES) SUMMARY FOR THE PRELIMINARY SPRING WHEAT NURSERY  
GROWN ON FOUR LOCATIONS ACROSS MONTANA**

LINE	VARIETY/ PEDIGREE	BOZEMAN	MOCCASIN	HAVRE	SIDNEY	AVG.	RANK
MT 1901	MT1206 / KS112 (124)//MT1206	34.1	28.0	31.1	28.9	30.5	73
MT 1902	MT1316/MT1103	34.8	31.1	28.8	30.9	31.4	62
MT 1903	MT1142 / C-306 (100)//MT1206	37.0	33.0	30.6	32.6	33.3	16
MT 1904	VIDA/13500539	36.5	31.4	28.5	31.2	31.9	46
MT 1905	VIDA/13500539	34.7	29.8	30.4	28.9	31.0	71
MT 1906	VIDA/IDO1202S	35.4	29.9	29.0	31.0	31.3	65
MT 1907	MT1338/MT1103	36.9	31.4	31.7	32.2	33.1	19
MT 1908	MT1338/13500539	34.3	30.2	30.5	29.6	31.2	70
MT 1909	MT1338/13500539	33.3	30.5	28.1	29.4	30.3	75
MT 1910	MT1338/MT1348	35.9	33.1	29.8	31.4	32.6	30
MT 1911	MT1338MT1234	36.7	31.9	30.5	31.0	32.5	31
MT 1912	MT1338MT1234	36.4	31.4	30.5	30.4	32.2	40
MT 1913	MT1338MT1234	34.9	29.9	29.7	31.0	31.4	63
MT 1914	VIDA/MT0945	34.9	29.5	29.2	29.6	30.8	72
MT 1915	MT1203/EGAN	37.9	32.6	31.0	30.6	33.0	20
MT 1916	MT1338/SD4181	35.8	29.0	31.3	30.4	31.6	54
MT 1917	MT1338/SD4181	37.5	32.2	31.6	31.9	33.3	17
MT 1918	MT1338/BW483	35.9	32.9	29.7	31.6	32.5	32
MT 1919	MT1203/MT1236	34.2	29.2	26.6	29.9	30.0	77
MT 1920	MT1203/MT1236	34.1	28.3	27.9	29.9	30.1	76
MT 1921	MT1203/MT1236	34.9	30.7	29.3	31.5	31.6	55
MT 1922	VIDA/MT1236	35.2	29.6	30.5	31.0	31.6	56
MT 1923	VIDA/MT1236	36.0	31.6	30.0	32.8	32.6	28
MT 1924	MT1316/MN01333-A	35.5	31.6	27.9	29.9	31.2	68
MT 1925	VIDA/SD4264	36.3	32.4	28.4	31.9	32.3	36
MT 1926	MT1316/MT0945	35.8	31.6	28.0	30.3	31.4	59
MT 1927	MT1203/MT1234	36.5	30.3	27.0	31.5	31.3	66
MT 1928	MT1338/MT1319	36.7	30.9	28.1	29.1	31.2	69
MT 1929	MT1316/MT1319	37.7	34.7	29.9	32.0	33.6	10
MT 1930	MT1316/MT1319	35.4	30.5	26.6	29.5	30.5	74
MT 1931	MT1316/MT1319	36.1	31.9	28.9	29.4	31.6	57
MT 1932	VIDA/MT1319	35.7	31.4	28.5	31.0	31.7	53
MT 1933	VIDA/MT1319	35.2	31.7	29.5	30.8	31.8	48
MT 1934	VIDA/MT1319	35.4	31.9	30.9	30.6	32.2	39
MT 1935	VIDA/MT1319	37.1	31.5	28.5	30.7	32.0	45
MT 1936	MT1338/SD4299	37.8	33.1	33.4	33.6	34.5	4
MT 1937	MT1316/13500539	35.7	30.6	30.8	28.6	31.4	60
MT 1938	MT1316/13500539	35.0	30.5	29.5	32.2	31.8	49
MT 1939	MT1316/13500539	35.0	30.1	29.8	30.4	31.3	67
MT 1940	MT1316/SD4181	36.9	32.4	29.6	31.8	32.7	26
MT 1941	MT1316/MT1348	36.5	33.1	31.0	31.1	32.9	22
MT 1942	MT1316/MT1348	33.0	28.1	28.1	27.6	29.2	79
MT 1943	MT1203/9263	39.2	32.8	30.9	33.3	34.1	5
MT 1944	MT1203/9263	33.4	27.4	25.3	26.8	28.2	81

**2019 PLANT HEIGHT (INCHES) SUMMARY FOR THE PRELIMINARY SPRING WHEAT NURSERY  
GROWN ON FOUR LOCATIONS ACROSS MONTANA (CONTINUED)**

LINE	VARIETY/ PEDIGREE	BOZEMAN	MOCCASIN	HAVRE	SIDNEY	AVG.	RANK
MT 1945	MT1203/9263	36.8	32.8	30.7	30.3	32.7	27
MT 1946	VIDA/BW483	37.3	28.9	31.7	33.2	32.8	25
MT 1947	MT1203/MT1340	36.8	31.3	29.6	30.2	32.0	43
MT 1948	MT1203/MT1340	34.3	27.6	27.6	28.1	29.4	78
MT 1949	MT1203/MT1340	33.3	27.9	26.0	28.9	29.0	80
MT 1950	MT1203/MT1340	37.1	30.8	29.9	30.3	32.0	42
MT 1951	MT1316/EGAN	37.5	33.5	31.8	32.0	33.7	9
MT 1952	MT1316/SD4299	36.4	31.2	30.5	31.5	32.4	33
MT 1953	MT1316/SD4299	36.0	32.8	30.8	29.9	32.4	34
MT 1954	MT1338/MN01333-A	37.9	33.2	29.8	32.7	33.4	13
MT 1955	MT1316/SD4264	35.4	31.1	29.5	30.7	31.7	52
MT 1956	MT1338/SD3997	35.6	32.2	31.6	32.7	33.0	21
MT 1957	MT1338/IDO1202S	35.9	31.6	30.2	31.2	32.2	38
MT 1958	MT1338/MT1348	36.6	34.7	31.3	30.8	33.4	14
MT 1959	0249XExGlupro	35.0	30.8	29.4	31.6	31.7	51
MT 1960	0249XExGlupro	35.3	30.1	30.3	29.8	31.4	64
MT 1961	0249XExGlupro	35.4	31.9	28.4	30.0	31.4	61
MT 1962	08521XMcNeal/Glupro	35.6	32.1	31.3	32.3	32.8	24
MT 1963	Duclair x McNeal/Glupro	35.1	32.6	30.5	31.0	32.3	35
MT 1964	Duclair x McNeal/Glupro	35.1	31.6	30.7	31.6	32.3	37
MT 1965	Duclair x McNeal/Glupro	36.6	32.9	31.0	32.8	33.3	15
MT 1966	VIDA/SxD3 (1052)	36.1	32.0	32.8	32.8	33.4	11
MT 1967	VIDA/SxD3 (1052)	37.7	31.7	31.6	32.7	33.4	12
MT 1968	VIDA/SxD3 (1052)	35.0	30.8	29.6	31.6	31.8	50
MT 1969	VIDA/SxD19 (1130)	39.3	35.0	31.0	34.0	34.8	3
MT 1970	VIDA/SxD19 (1130)	42.7	<u>38.4</u>	33.9	<u>36.9</u>	<u>38.0</u>	2
MT 1971	VIDA/SxD31 (1310)	35.6	31.4	30.5	31.0	32.1	41
MT 1972	VIDA/SxD47 (1364)	39.4	29.8	33.2	33.2	33.9	6
MT 1973	VIDA/SxD47 (1364)	38.0	31.0	32.1	31.4	33.1	18
MT 1974	VIDA/SxD53 (1393)	36.6	32.6	31.0	31.2	32.9	23
MT 1975	VIDA/SxD53 (1393)	38.3	33.4	30.8	33.0	33.9	8
MT 1976	VIDA/SxD65 (1442)	35.1	30.3	31.0	31.1	31.9	47
CI 13596	FORTUNA	<u>43.9</u>	<u>37.8</u>	<u>37.3</u>	<u>36.7</u>	<u>38.9</u>	1
PI 574642	MCNEAL	36.6	31.6	30.8	31.4	32.6	29
ND 695	REEDER	38.1	32.6	31.7	33.2	33.9	7
PI 633974	CHOTEAU	34.9	30.9	30.0	30.2	31.5	58
PI 642366	VIDA	36.6	30.4	29.4	31.5	32.0	44
	MEAN	36.2	31.4	30.1	31.2	32.2	
	C.V.	1.7	3.7	5.0	4.1	3.0	
	PROBABILITY (ENTRY)	<0.001	<0.001	<0.001	<0.001	<0.001	
	LSD(0.05)	1.1	2.0	2.4	2.1	1.3	
	LATTICE RE(%) <sup>1)</sup>	167.2	184.7	103.4	100.7	-	

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

**2019 GRAIN PROTEIN (%) SUMMARY FOR THE PRELIMINARY SPRING WHEAT NURSERY GROWN ON  
FOUR LOCATIONS ACROSS MONTANA**

LINE	VARIETY/ PEDIGREE	BOZEMAN	MOCCASIN	HAVRE	SIDNEY	AVG.	RANK
MT 1901	MT1206 / KS112 (124)//MT1206	13.7	13.3	16.5	13.1	14.2	54
MT 1902	MT1316/MT1103	14.9	11.8	15.4	13.9	14.0	60
MT 1903	MT1142 / C-306 (100)//MT1206	14.4	13.1	16.3	12.7	14.1	56
MT 1904	VIDA/13500539	14.2	12.3	14.7	13.2	13.6	74
MT 1905	VIDA/13500539	14.6	12.0	15.1	12.7	13.6	75
MT 1906	VIDA/IDO1202S	14.4	11.9	15.1	13.6	13.8	71
MT 1907	MT1338/MT1103	14.1	11.7	15.5	12.8	13.5	77
MT 1908	MT1338/13500539	15.3	12.7	16.3	14.3	14.7	24
MT 1909	MT1338/13500539	15.0	12.2	15.9	13.5	14.2	55
MT 1910	MT1338/MT1348	14.9	12.1	15.6	13.7	14.1	58
MT 1911	MT1338MT1234	14.7	13.1	16.4	13.5	14.4	34
MT 1912	MT1338MT1234	15.2	13.4	16.4	13.9	14.7	20
MT 1913	MT1338MT1234	<u>16.5</u>	<u>13.8</u>	<u>17.4</u>	<u>15.7</u>	<u>15.9</u>	1
MT 1914	VIDA/MT0945	14.6	12.9	15.4	13.8	14.2	48
MT 1915	MT1203/EGAN	16.4	<u>14.4</u>	<u>17.5</u>	14.3	<u>15.7</u>	2
MT 1916	MT1338/SD4181	15.1	13.1	15.9	13.9	14.5	31
MT 1917	MT1338/SD4181	16.2	13.5	17.0	13.9	15.2	8
MT 1918	MT1338/BW483	15.6	13.2	16.3	<u>14.9</u>	15.0	13
MT 1919	MT1203/MT1236	15.9	13.6	17.0	<u>15.0</u>	<u>15.4</u>	5
MT 1920	MT1203/MT1236	14.3	13.0	16.1	13.4	14.2	47
MT 1921	MT1203/MT1236	15.0	13.1	16.7	14.3	14.8	18
MT 1922	VIDA/MT1236	14.4	12.4	15.3	13.3	13.9	66
MT 1923	VIDA/MT1236	15.6	13.0	16.3	<u>14.9</u>	15.0	14
MT 1924	MT1316/MN01333-A	15.4	11.6	16.1	14.0	14.3	42
MT 1925	VIDA/SD4264	14.8	12.3	15.5	12.7	13.8	68
MT 1926	MT1316/MT0945	14.4	11.9	15.1	12.7	13.5	78
MT 1927	MT1203/MT1234	15.6	12.9	16.3	13.4	14.6	29
MT 1928	MT1338/MT1319	14.9	12.0	15.7	13.2	14.0	61
MT 1929	MT1316/MT1319	15.1	12.2	15.9	13.5	14.2	49
MT 1930	MT1316/MT1319	15.6	12.5	16.1	13.5	14.4	35
MT 1931	MT1316/MT1319	15.3	12.5	15.3	14.0	14.3	43
MT 1932	VIDA/MT1319	15.6	12.0	15.8	13.5	14.2	46
MT 1933	VIDA/MT1319	15.2	11.7	15.2	13.3	13.9	67
MT 1934	VIDA/MT1319	14.6	11.6	15.4	14.1	13.9	63
MT 1935	VIDA/MT1319	14.7	12.0	14.8	13.7	13.8	69
MT 1936	MT1338/SD4299	14.8	12.1	15.9	13.7	14.1	57
MT 1937	MT1316/13500539	15.1	12.1	16.4	13.6	14.3	40
MT 1938	MT1316/13500539	15.1	12.3	15.4	14.2	14.3	44
MT 1939	MT1316/13500539	14.5	11.8	15.2	13.3	13.7	73
MT 1940	MT1316/SD4181	15.5	12.9	16.3	<u>14.8</u>	14.9	16
MT 1941	MT1316/MT1348	15.8	12.2	17.0	13.4	14.6	25
MT 1942	MT1316/MT1348	14.9	12.0	15.7	14.1	14.2	50
MT 1943	MT1203/9263	14.7	12.0	15.1	12.6	13.6	76
MT 1944	MT1203/9263	15.5	12.4	15.7	14.2	14.5	33

**2019 GRAIN PROTEIN (%) SUMMARY FOR THE PRELIMINARY SPRING WHEAT NURSERY GROWN ON  
FOUR LOCATIONS ACROSS MONTANA (CONTINUED)**

LINE	VARIETY/ PEDIGREE	BOZEMAN	MOCCASIN	HAVRE	SIDNEY	AVG.	RANK
MT 1945	MT1203/9263	15.1	11.8	15.1	13.1	13.8	70
MT 1946	VIDA/BW483	15.4	12.8	15.7	13.8	14.4	36
MT 1947	MT1203/MT1340	15.3	13.0	16.0	13.7	14.5	32
MT 1948	MT1203/MT1340	15.9	13.3	16.6	14.6	15.1	10
MT 1949	MT1203/MT1340	15.6	13.1	16.8	<u>14.9</u>	15.1	11
MT 1950	MT1203/MT1340	15.4	13.1	16.4	14.3	14.8	17
MT 1951	MT1316/EGAN	16.4	13.5	16.9	14.7	<u>15.4</u>	6
MT 1952	MT1316/SD4299	15.1	12.8	15.9	13.6	14.4	39
MT 1953	MT1316/SD4299	14.2	12.1	15.5	13.1	13.7	72
MT 1954	MT1338/MN01333-A	15.1	13.2	16.8	14.0	14.8	19
MT 1955	MT1316/SD4264	14.6	11.7	15.9	13.6	14.0	62
MT 1956	MT1338/SD3997	14.9	12.6	15.6	13.6	14.2	51
MT 1957	MT1338/IDO1202S	15.4	12.9	15.4	13.8	14.4	38
MT 1958	MT1338/MT1348	15.0	13.2	16.0	14.5	14.7	22
MT 1959	0249XExGlupro	15.7	12.6	16.3	13.6	14.6	30
MT 1960	0249XExGlupro	15.6	12.2	16.5	14.0	14.6	27
MT 1961	0249XExGlupro	16.1	13.0	16.9	14.1	15.0	12
MT 1962	08521XMcNeal/Glupro	16.3	13.5	<u>17.3</u>	14.0	15.3	7
MT 1963	Duclair x McNeal/Glupro	15.4	13.1	16.7	13.5	14.7	23
MT 1964	Duclair x McNeal/Glupro	15.5	13.7	17.1	14.3	15.2	9
MT 1965	Duclair x McNeal/Glupro	15.4	13.3	16.9	14.2	15.0	15
MT 1966	VIDA/SxD3 (1052)	15.5	12.8	16.3	14.3	14.7	21
MT 1967	VIDA/SxD3 (1052)	15.0	12.7	15.9	13.1	14.2	52
MT 1968	VIDA/SxD3 (1052)	<u>16.5</u>	<u>13.8</u>	17.0	<u>14.8</u>	<u>15.5</u>	3
MT 1969	VIDA/SxD19 (1130)	15.9	12.3	16.1	12.9	14.3	41
MT 1970	VIDA/SxD19 (1130)	14.9	12.8	15.8	13.2	14.2	53
MT 1971	VIDA/SxD31 (1310)	14.8	12.9	15.3	13.1	14.0	59
MT 1972	VIDA/SxD47 (1364)	14.0	11.8	14.7	12.0	13.1	80
MT 1973	VIDA/SxD47 (1364)	13.5	12.7	14.7	11.5	13.1	81
MT 1974	VIDA/SxD53 (1393)	14.8	12.5	15.6	14.7	14.4	37
MT 1975	VIDA/SxD53 (1393)	15.4	12.4	16.3	14.3	14.6	26
MT 1976	VIDA/SxD65 (1442)	16.1	13.2	16.9	<u>15.8</u>	<u>15.5</u>	4
CI 13596	FORTUNA	14.3	12.8	15.4	13.0	13.9	65
PI 574642	MCNEAL	15.0	12.7	15.4	12.5	13.9	64
ND 695	REEDER	15.1	12.0	15.8	14.1	14.3	45
PI 633974	CHOTEAU	15.0	12.9	16.3	14.1	14.6	28
PI 642366	VIDA	14.5	11.7	14.9	12.7	13.5	79
	MEAN	15.1	12.6	16.0	13.7	14.4	
	C.V.	1REP	3.4	1.3	4.8	2.9	
	PROBABILITY (ENTRY)	1REP	<0.001	<0.001	<0.001	<0.001	
	LSD(0.05)	1REP	0.7	0.4	1.1	0.6	
	LATTICE RE(%) <sup>1)</sup>	1REP	226.5	110.9	202.5	-	

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

2019 PRELIMINARY SPRING WHEAT NURSERY, BOZEMAN (DRY)

LINE	VARIETY/ PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	STEM SOLIDNESS (5-25)	TEST WEIGHT (LB/BU)	PROTEIN (%)
MT 1901	MT1206 / KS112 (124)//MT1206	<u>186.5</u>	34.1	92.5	19.3	59.9	13.7
MT 1902	MT1316/MT1103	189.6	34.8	92.6	14.6	59.7	14.9
MT 1903	MT1142 / C-306 (100)//MT1206	189.1	37.0	87.5	<u>19.7</u>	59.9	14.4
MT 1904	VIDA/13500539	192.3	36.5	<u>100.1</u>	<u>20.4</u>	60.5	14.2
MT 1905	VIDA/13500539	191.4	34.7	95.4	<u>20.1</u>	58.5	14.6
MT 1906	VIDA/IDO1202S	193.5	35.4	88.2	12.2	60.1	14.4
MT 1907	MT1338/MT1103	191.3	36.9	96.7	14.7	60.1	14.1
MT 1908	MT1338/13500539	188.1	34.3	85.6	17.6	<u>59.1</u>	15.3
MT 1909	MT1338/13500539	187.5	33.3	91.2	19.3	60.0	15.0
MT 1910	MT1338/MT1348	189.4	35.9	93.8	15.0	60.5	14.9
MT 1911	MT1338MT1234	190.5	36.7	90.3	16.8	60.8	14.7
MT 1912	MT1338MT1234	192.2	36.4	81.2	17.5	60.1	15.2
MT 1913	MT1338MT1234	188.7	34.9	78.9	17.9	60.2	<u>16.5</u>
MT 1914	VIDA/MT0945	190.8	34.9	82.9	10.0	59.9	14.6
MT 1915	MT1203/EGAN	191.5	37.9	80.0	10.7	59.2	16.4
MT 1916	MT1338/SD4181	187.8	35.8	82.8	11.6	60.3	15.1
MT 1917	MT1338/SD4181	189.2	37.5	82.8	13.3	61.8	16.2
MT 1918	MT1338/BW483	188.0	35.9	74.1	7.8	59.9	15.6
MT 1919	MT1203/MT1236	188.8	34.2	95.5	<u>20.3</u>	58.2	15.9
MT 1920	MT1203/MT1236	187.8	34.1	90.8	<u>20.4</u>	59.0	14.3
MT 1921	MT1203/MT1236	188.9	34.9	83.5	<u>20.1</u>	58.7	15.0
MT 1922	VIDA/MT1236	190.5	35.2	88.8	17.1	59.3	14.4
MT 1923	VIDA/MT1236	190.1	36.0	93.4	15.4	58.4	15.6
MT 1924	MT1316/MN01333-A	<u>186.5</u>	35.5	83.7	8.7	60.9	15.4
MT 1925	VIDA/SD4264	189.4	36.3	85.2	12.2	61.3	14.8
MT 1926	MT1316/MT0945	191.3	35.8	<u>105.7</u>	11.9	59.5	14.4
MT 1927	MT1203/MT1234	192.2	36.5	94.8	15.5	59.0	15.6
MT 1928	MT1338/MT1319	187.7	36.7	96.0	12.4	59.6	14.9
MT 1929	MT1316/MT1319	189.8	37.7	93.7	8.4	59.9	15.1
MT 1930	MT1316/MT1319	187.5	35.4	90.9	10.1	58.8	15.6
MT 1931	MT1316/MT1319	189.1	36.1	91.6	10.6	59.8	15.3
MT 1932	VIDA/MT1319	188.2	35.7	91.0	14.7	58.0	15.6
MT 1933	VIDA/MT1319	189.4	35.2	85.8	11.0	60.7	15.2
MT 1934	VIDA/MT1319	189.7	35.4	90.6	14.4	59.9	14.6
MT 1935	VIDA/MT1319	191.8	37.1	93.7	12.4	59.9	14.7
MT 1936	MT1338/SD4299	192.8	37.8	86.2	15.4	60.2	14.8
MT 1937	MT1316/13500539	189.9	35.7	91.8	9.5	59.7	15.1
MT 1938	MT1316/13500539	189.6	35.0	90.8	18.3	58.8	15.1
MT 1939	MT1316/13500539	190.8	35.0	93.4	18.8	59.5	14.5
MT 1940	MT1316/SD4181	189.1	36.9	86.9	7.5	61.7	15.5
MT 1941	MT1316/MT1348	191.3	36.5	95.0	8.8	59.6	15.8
MT 1942	MT1316/MT1348	187.9	33.0	90.9	11.3	59.4	14.9
MT 1943	MT1203/9263	193.5	39.2	86.1	9.3	59.7	14.7
MT 1944	MT1203/9263	<u>186.9</u>	33.4	90.9	13.9	58.2	15.5

2019 PRELIMINARY SPRING WHEAT NURSERY, BOZEMAN (DRY), (CONTINUED)

LINE	VARIETY/ PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	STEM SOLIDNESS (5-25)	TEST WEIGHT (LB/BU)	PROTEIN (%)
MT 1945	MT1203/9263	191.0	36.8	88.2	11.4	60.5	15.1
MT 1946	VIDA/BW483	191.6	37.3	87.6	9.8	<u>62.3</u>	15.4
MT 1947	MT1203/MT1340	188.7	36.8	81.6	<u>23.3</u>	60.1	15.3
MT 1948	MT1203/MT1340	190.9	34.3	83.1	<u>19.7</u>	59.3	15.9
MT 1949	MT1203/MT1340	189.5	33.3	87.4	16.9	60.2	15.6
MT 1950	MT1203/MT1340	189.2	37.1	82.6	18.4	60.0	15.4
MT 1951	MT1316/EGAN	191.4	37.5	92.9	7.2	59.1	16.4
MT 1952	MT1316/SD4299	192.6	36.4	77.5	10.3	60.5	15.1
MT 1953	MT1316/SD4299	187.5	36.0	88.3	11.5	57.9	14.2
MT 1954	MT1338/MN01333-A	190.4	37.9	77.8	10.8	60.3	15.1
MT 1955	MT1316/SD4264	191.1	35.4	95.5	9.6	60.9	14.6
MT 1956	MT1338/SD3997	193.2	35.6	<u>99.6</u>	16.4	58.2	14.9
MT 1957	MT1338/IDO1202S	190.6	35.9	87.0	12.2	59.7	15.4
MT 1958	MT1338/MT1348	<u>186.4</u>	36.6	84.6	17.3	61.3	15.0
MT 1959	0249XExGlupro	189.0	35.0	91.2	15.5	59.1	15.7
MT 1960	0249XExGlupro	189.5	35.3	95.6	16.0	59.7	15.6
MT 1961	0249XExGlupro	189.4	35.4	97.5	18.7	59.8	16.1
MT 1962	08521XMcNeal/Glupro	190.0	35.6	76.0	18.7	59.8	16.3
MT 1963	Duclair x McNeal/Glupro	189.9	35.1	95.5	<u>19.4</u>	59.1	15.4
MT 1964	Duclair x McNeal/Glupro	189.0	35.1	87.1	<u>22.1</u>	59.2	15.5
MT 1965	Duclair x McNeal/Glupro	189.3	36.6	94.6	19.0	58.6	15.4
MT 1966	VIDA/SxD3 (1052)	192.1	36.1	71.6	14.3	59.9	15.5
MT 1967	VIDA/SxD3 (1052)	190.6	37.7	91.7	12.1	61.5	15.0
MT 1968	VIDA/SxD3 (1052)	193.1	35.0	77.2	<u>19.9</u>	60.7	<u>16.5</u>
MT 1969	VIDA/SxD19 (1130)	192.5	39.3	84.5	15.6	58.8	15.9
MT 1970	VIDA/SxD19 (1130)	193.4	42.7	83.4	14.8	59.6	14.9
MT 1971	VIDA/SxD31 (1310)	192.1	35.6	89.5	17.7	59.2	14.8
MT 1972	VIDA/SxD47 (1364)	194.1	39.4	83.1	13.5	59.4	14.0
MT 1973	VIDA/SxD47 (1364)	194.5	38.0	84.9	10.4	59.9	13.5
MT 1974	VIDA/SxD53 (1393)	<u>185.8</u>	36.6	79.8	11.0	56.7	14.8
MT 1975	VIDA/SxD53 (1393)	189.4	38.3	81.3	16.6	58.0	15.4
MT 1976	VIDA/SxD65 (1442)	192.8	35.1	81.6	<u>21.5</u>	59.8	16.1
CI 13596	FORTUNA	192.5	<u>43.9</u>	84.3	16.3	60.5	14.3
PI 574642	MCNEAL	193.0	36.6	72.6	9.7	60.2	15.0
ND 695	REEDER	193.0	38.1	85.3	8.8	61.2	15.1
PI 633974	CHOTEAU	190.6	34.9	82.3	18.8	58.8	15.0
PI 642366	VIDA	192.5	36.6	91.5	12.3	59.6	14.5
	MEAN	190.2	36.2	87.9	14.6	58.6	15.1
	C.V.	0.5	1.7	5.4	16.3	1REP	1REP
	PROBABILITY (ENTRY)	<0.001	<0.001	<0.001	<0.001	1REP	1REP
	LSD(0.05)	1.5	1.1	8.0	4.0	1REP	1REP
	LATTICE RE(%) <sup>1)</sup>	129.7	167.2	112.8	107.9	1REP	1REP

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

2019 PRELIMINARY SPRING WHEAT NURSERY, MOCCASIN (DRY)

LINE	VARIETY/ PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
MT 1901	MT1206 / KS112 (124)//MT1206	<u>180.7</u>	28.0	52.4	60.8	13.3
MT 1902	MT1316/MT1103	182.0	31.1	57.5	62.3	11.8
MT 1903	MT1142 / C-306 (100)//MT1206	183.7	33.0	48.7	60.0	13.1
MT 1904	VIDA/13500539	183.7	31.4	<u>62.8</u>	61.8	12.3
MT 1905	VIDA/13500539	184.7	29.8	55.5	60.1	12.0
MT 1906	VIDA/IDO1202S	185.3	29.9	53.8	59.7	11.9
MT 1907	MT1338/MT1103	183.0	31.4	49.5	60.6	11.7
MT 1908	MT1338/13500539	<u>181.3</u>	30.2	48.0	61.7	12.7
MT 1909	MT1338/13500539	<u>181.3</u>	30.5	59.1	62.8	12.2
MT 1910	MT1338/MT1348	182.7	33.1	56.7	62.0	12.1
MT 1911	MT1338MT1234	184.0	31.9	53.5	61.9	13.1
MT 1912	MT1338MT1234	184.3	31.4	54.2	61.1	13.4
MT 1913	MT1338MT1234	<u>181.0</u>	29.9	48.1	61.6	<u>13.8</u>
MT 1914	VIDA/MT0945	183.3	29.5	47.8	60.3	12.9
MT 1915	MT1203/EGAN	182.3	32.6	50.7	59.0	<u>14.4</u>
MT 1916	MT1338/SD4181	181.7	29.0	46.8	62.1	13.1
MT 1917	MT1338/SD4181	182.7	32.2	52.7	<u>64.2</u>	13.5
MT 1918	MT1338/BW483	182.0	32.9	48.7	60.3	13.2
MT 1919	MT1203/MT1236	182.7	29.2	55.4	58.4	13.6
MT 1920	MT1203/MT1236	<u>181.0</u>	28.3	51.6	60.3	13.0
MT 1921	MT1203/MT1236	182.0	30.7	50.9	59.7	13.1
MT 1922	VIDA/MT1236	183.3	29.6	56.1	59.4	12.4
MT 1923	VIDA/MT1236	181.7	31.6	54.9	59.0	13.0
MT 1924	MT1316/MN01333-A	<u>181.3</u>	31.6	54.1	62.3	11.6
MT 1925	VIDA/SD4264	183.0	32.4	50.2	62.0	12.3
MT 1926	MT1316/MT0945	183.3	31.6	51.6	57.4	11.9
MT 1927	MT1203/MT1234	184.0	30.3	56.2	58.5	12.9
MT 1928	MT1338/MT1319	<u>180.0</u>	30.9	52.0	62.0	12.0
MT 1929	MT1316/MT1319	<u>180.7</u>	34.7	59.1	59.4	12.2
MT 1930	MT1316/MT1319	<u>180.3</u>	30.5	49.9	61.1	12.5
MT 1931	MT1316/MT1319	<u>181.0</u>	31.9	<u>66.9</u>	62.0	12.5
MT 1932	VIDA/MT1319	<u>181.3</u>	31.4	<u>60.1</u>	59.8	12.0
MT 1933	VIDA/MT1319	<u>181.3</u>	31.7	54.8	61.3	11.7
MT 1934	VIDA/MT1319	<u>181.0</u>	31.9	55.9	61.4	11.6
MT 1935	VIDA/MT1319	182.0	31.5	59.3	60.6	12.0
MT 1936	MT1338/SD4299	184.3	33.1	56.4	62.4	12.1
MT 1937	MT1316/13500539	<u>181.3</u>	30.6	58.6	61.0	12.1
MT 1938	MT1316/13500539	181.7	30.5	<u>60.3</u>	61.5	12.3
MT 1939	MT1316/13500539	182.0	30.1	<u>59.9</u>	61.9	11.8
MT 1940	MT1316/SD4181	<u>181.3</u>	32.4	53.5	61.7	12.9
MT 1941	MT1316/MT1348	182.0	33.1	<u>60.3</u>	61.2	12.2
MT 1942	MT1316/MT1348	<u>181.0</u>	28.1	57.3	61.3	12.0
MT 1943	MT1203/9263	185.0	32.8	<u>63.9</u>	59.6	12.0
MT 1944	MT1203/9263	<u>181.3</u>	27.4	51.2	60.4	12.4

2019 PRELIMINARY SPRING WHEAT NURSERY, MOCCASIN (DRY), (CONTINUED)

LINE	VARIETY/ PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
MT 1945	MT1203/9263	182.0	32.8	53.8	60.6	11.8
MT 1946	VIDA/BW483	183.7	28.9	48.0	62.2	12.8
MT 1947	MT1203/MT1340	<u>181.0</u>	31.3	57.8	60.4	13.0
MT 1948	MT1203/MT1340	182.7	27.6	51.6	59.2	13.3
MT 1949	MT1203/MT1340	182.7	27.9	52.3	60.5	13.1
MT 1950	MT1203/MT1340	182.0	30.8	<u>64.6</u>	60.9	13.1
MT 1951	MT1316/EGAN	182.0	33.5	57.0	58.3	13.5
MT 1952	MT1316/SD4299	183.3	31.2	50.2	60.3	12.8
MT 1953	MT1316/SD4299	<u>180.3</u>	32.8	53.4	60.3	12.1
MT 1954	MT1338/MN01333-A	183.0	33.2	45.4	63.2	13.2
MT 1955	MT1316/SD4264	182.0	31.1	58.9	61.9	11.7
MT 1956	MT1338/SD3997	185.7	32.2	53.8	58.3	12.6
MT 1957	MT1338/IDO1202S	182.7	31.6	56.8	61.2	12.9
MT 1958	MT1338/MT1348	<u>180.3</u>	34.7	52.5	63.1	13.2
MT 1959	0249XExGlupro	181.7	30.8	<u>67.9</u>	60.9	12.6
MT 1960	0249XExGlupro	182.3	30.1	51.1	61.5	12.2
MT 1961	0249XExGlupro	182.0	31.9	<u>62.3</u>	61.5	13.0
MT 1962	08521XMcNeal/Glupro	183.0	32.1	53.0	61.3	13.5
MT 1963	Duclair x McNeal/Glupro	182.7	32.6	51.5	58.4	13.1
MT 1964	Duclair x McNeal/Glupro	182.0	31.6	51.3	58.1	13.7
MT 1965	Duclair x McNeal/Glupro	181.7	32.9	50.2	57.9	13.3
MT 1966	VIDA/SxD3 (1052)	183.0	32.0	53.2	61.4	12.8
MT 1967	VIDA/SxD3 (1052)	187.0	31.7	51.8	60.9	12.7
MT 1968	VIDA/SxD3 (1052)	184.7	30.8	50.5	60.8	<u>13.8</u>
MT 1969	VIDA/SxD19 (1130)	185.0	35.0	49.5	58.5	12.3
MT 1970	VIDA/SxD19 (1130)	185.3	<u>38.4</u>	47.4	59.6	12.8
MT 1971	VIDA/SxD31 (1310)	184.0	31.4	52.0	59.5	12.9
MT 1972	VIDA/SxD47 (1364)	185.7	29.8	42.5	58.3	11.8
MT 1973	VIDA/SxD47 (1364)	187.7	31.0	46.8	56.2	12.7
MT 1974	VIDA/SxD53 (1393)	<u>180.3</u>	32.6	53.0	58.7	12.5
MT 1975	VIDA/SxD53 (1393)	182.3	33.4	48.6	59.7	12.4
MT 1976	VIDA/SxD65 (1442)	182.7	30.3	52.9	60.8	13.2
CI 13596	FORTUNA	183.3	<u>37.8</u>	43.2	59.6	12.8
PI 574642	MCNEAL	184.0	31.6	49.5	59.7	12.7
ND 695	REEDER	183.7	32.6	55.4	61.8	12.0
PI 633974	CHOTEAU	183.7	30.9	52.1	60.8	12.9
PI 642366	VIDA	183.7	30.4	52.4	60.1	11.7
	MEAN	182.6	31.4	53.7	60.6	12.6
	C.V.	0.5	3.7	9.0	1.0	3.4
	PROBABILITY (ENTRY)	<0.001	<0.001	<0.001	<0.001	<0.001
	LSD(0.05)	1.5	2.0	8.3	1.0	0.7
	LATTICE RE(%) <sup>1)</sup>	98.5	184.7	131.5	155.9	226.5

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

**2019 PRELIMINARY SPRING WHEAT NURSERY, HAVRE (DRY)**

LINE	VARIETY/ PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	SAWFLY (%)
MT 1901	MT1206 / KS112 (124)//MT1206	170.4	31.1	50.3	59.5	16.5	3.0
MT 1902	MT1316/MT1103	172.1	28.8	52.3	61.4	15.4	18.0
MT 1903	MT1142 / C-306 (100)//MT1206	174.7	30.6	54.8	59.2	16.3	3.2
MT 1904	VIDA/13500539	177.1	28.5	50.4	60.7	14.7	2.2
MT 1905	VIDA/13500539	177.4	30.4	59.7	59.1	15.1	0.6
MT 1906	VIDA/IDO1202S	177.3	29.0	53.1	59.8	15.1	6.6
MT 1907	MT1338/MT1103	175.9	31.7	53.7	59.5	15.5	9.2
MT 1908	MT1338/13500539	171.6	30.5	47.2	60.6	16.3	7.9
MT 1909	MT1338/13500539	172.6	28.1	53.5	61.4	15.9	10.3
MT 1910	MT1338/MT1348	173.8	29.8	54.3	60.7	15.6	10.1
MT 1911	MT1338MT1234	174.1	30.5	56.3	60.4	16.4	12.0
MT 1912	MT1338MT1234	178.2	30.5	49.7	59.8	16.4	20.0
MT 1913	MT1338MT1234	175.1	29.7	49.8	60.2	17.4	5.0
MT 1914	VIDA/MT0945	175.0	29.2	53.2	60.4	15.4	7.0
MT 1915	MT1203/EGAN	175.0	31.0	43.0	57.8	17.5	26.5
MT 1916	MT1338/SD4181	172.8	31.3	48.3	60.8	15.9	28.8
MT 1917	MT1338/SD4181	173.7	31.6	45.0	62.1	17.0	21.3
MT 1918	MT1338/BW483	173.2	29.7	42.0	61.1	16.3	19.9
MT 1919	MT1203/MT1236	173.3	26.6	49.3	57.4	17.0	1.6
MT 1920	MT1203/MT1236	173.2	27.9	52.2	58.7	16.1	4.4
MT 1921	MT1203/MT1236	173.0	29.3	48.1	58.5	16.7	6.0
MT 1922	VIDA/MT1236	175.2	30.5	53.0	59.4	15.3	7.3
MT 1923	VIDA/MT1236	174.3	30.0	49.2	58.1	16.3	5.3
MT 1924	MT1316/MN01333-A	171.3	27.9	41.6	61.1	16.1	17.7
MT 1925	VIDA/SD4264	173.6	28.4	47.7	61.5	15.5	17.8
MT 1926	MT1316/MT0945	175.4	28.0	51.3	58.4	15.1	17.0
MT 1927	MT1203/MT1234	175.7	27.0	53.1	57.3	16.3	5.0
MT 1928	MT1338/MT1319	171.1	28.1	47.5	60.2	15.7	17.4
MT 1929	MT1316/MT1319	171.9	29.9	48.6	59.1	15.9	24.4
MT 1930	MT1316/MT1319	169.2	26.6	47.3	60.0	16.1	14.2
MT 1931	MT1316/MT1319	172.8	28.9	49.6	60.1	15.3	16.2
MT 1932	VIDA/MT1319	172.8	28.5	52.6	59.1	15.8	9.9
MT 1933	VIDA/MT1319	173.4	29.5	53.9	60.3	15.2	17.9
MT 1934	VIDA/MT1319	172.3	30.9	53.3	60.1	15.4	15.3
MT 1935	VIDA/MT1319	175.3	28.5	53.5	59.9	14.8	13.6
MT 1936	MT1338/SD4299	176.8	33.4	51.7	60.6	15.9	16.0
MT 1937	MT1316/13500539	174.2	30.8	48.6	59.6	16.4	22.1
MT 1938	MT1316/13500539	174.7	29.5	52.8	59.3	15.4	4.9
MT 1939	MT1316/13500539	174.8	29.8	57.4	60.0	15.2	9.4
MT 1940	MT1316/SD4181	172.2	29.6	46.9	60.9	16.3	24.0
MT 1941	MT1316/MT1348	173.5	31.0	46.3	59.7	17.0	13.0
MT 1942	MT1316/MT1348	172.1	28.1	48.5	60.1	15.7	19.8
MT 1943	MT1203/9263	176.3	30.9	54.4	59.0	15.1	22.9
MT 1944	MT1203/9263	170.8	25.3	47.7	59.7	15.7	11.7

2019 PRELIMINARY SPRING WHEAT NURSERY, HAVRE (DRY), (CONTINUED)

LINE	VARIETY/ PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	SAWFLY (%)
MT 1945	MT1203/9263	173.3	30.7	50.3	60.1	15.1	20.6
MT 1946	VIDA/BW483	175.8	31.7	52.7	60.9	15.7	14.0
MT 1947	MT1203/MT1340	172.9	29.6	51.0	58.9	16.0	2.7
MT 1948	MT1203/MT1340	175.5	27.6	52.6	58.9	16.6	11.6
MT 1949	MT1203/MT1340	173.3	26.0	48.9	59.9	16.8	2.7
MT 1950	MT1203/MT1340	172.8	29.9	51.1	60.0	16.4	12.1
MT 1951	MT1316/EGAN	174.1	31.8	48.4	56.8	16.9	18.1
MT 1952	MT1316/SD4299	175.8	30.5	47.6	60.6	15.9	19.8
MT 1953	MT1316/SD4299	171.2	30.8	45.6	59.1	15.5	21.7
MT 1954	MT1338/MN01333-A	172.9	29.8	36.5	60.3	16.8	17.2
MT 1955	MT1316/SD4264	173.9	29.5	52.8	60.5	15.9	13.4
MT 1956	MT1338/SD3997	177.4	31.6	48.6	57.2	15.6	10.3
MT 1957	MT1338/IDO1202S	174.4	30.2	54.9	59.9	15.4	31.4
MT 1958	MT1338/MT1348	171.6	31.3	44.5	61.1	16.0	9.1
MT 1959	0249XExGlupro	173.7	29.4	54.1	59.9	16.3	11.6
MT 1960	0249XExGlupro	173.0	30.3	50.4	60.1	16.5	6.4
MT 1961	0249XExGlupro	173.1	28.4	51.5	59.8	16.9	3.2
MT 1962	08521XMcNeal/Glupro	175.6	31.3	45.7	59.0	17.3	3.1
MT 1963	Duclair x McNeal/Glupro	174.1	30.5	52.0	57.9	16.7	9.4
MT 1964	Duclair x McNeal/Glupro	172.4	30.7	49.0	58.0	17.1	6.2
MT 1965	Duclair x McNeal/Glupro	174.6	31.0	49.4	57.2	16.9	5.9
MT 1966	VIDA/SxD3 (1052)	175.3	32.8	51.7	60.1	16.3	10.6
MT 1967	VIDA/SxD3 (1052)	180.0	31.6	51.6	59.9	15.9	7.2
MT 1968	VIDA/SxD3 (1052)	176.5	29.6	45.2	58.9	17.0	7.4
MT 1969	VIDA/SxD19 (1130)	176.8	31.0	43.1	57.2	16.1	9.9
MT 1970	VIDA/SxD19 (1130)	177.4	33.9	44.8	58.7	15.8	8.5
MT 1971	VIDA/SxD31 (1310)	177.1	30.5	50.8	58.9	15.3	5.5
MT 1972	VIDA/SxD47 (1364)	178.0	33.2	46.8	58.5	14.7	6.6
MT 1973	VIDA/SxD47 (1364)	180.5	32.1	52.4	56.3	14.7	0.6
MT 1974	VIDA/SxD53 (1393)	171.1	31.0	42.5	58.0	15.6	13.8
MT 1975	VIDA/SxD53 (1393)	174.7	30.8	44.9	58.2	16.3	5.5
MT 1976	VIDA/SxD65 (1442)	176.4	31.0	43.8	58.8	16.9	5.5
CI 13596	FORTUNA	177.2	37.3	47.0	58.8	15.4	7.9
PI 574642	MCNEAL	175.8	30.8	48.6	59.0	15.4	18.9
ND 695	REEDER	176.3	31.7	50.1	60.4	15.8	13.3
PI 633974	CHOTEAU	176.0	30.0	53.8	59.2	16.3	6.6
PI 642366	VIDA	177.2	29.4	55.4	60.3	14.9	9.1
	MEAN	174.4	30.1	49.8	59.5	16.0	11.8
	C.V.	0.6	5.0	5.6	0.6	1.3	33.5
	PROBABILITY (ENTRY)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	LSD(0.05)	1.7	2.4	4.8	0.6	0.4	6.7
	LATTICE RE(%) <sup>1)</sup>	107.2	103.4	173.9	122.2	110.9	141.8

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

2019 PRELIMINARY SPRING WHEAT NURSERY, SIDNEY (DRY)

LINE	VARIETY/ PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
MT 1901	MT1206 / KS112 (124)//MT1206	<u>170.0</u>	28.9	82.9	62.7	13.1
MT 1902	MT1316/MT1103	171.3	30.9	<u>92.4</u>	63.4	13.9
MT 1903	MT1142 / C-306 (100)//MT1206	172.0	32.6	86.2	62.4	12.7
MT 1904	VIDA/13500539	175.0	31.2	<u>97.0</u>	63.0	13.2
MT 1905	VIDA/13500539	175.7	28.9	83.4	61.8	12.7
MT 1906	VIDA/IDO1202S	175.0	31.0	<u>92.8</u>	62.6	13.6
MT 1907	MT1338/MT1103	172.3	32.2	<u>90.1</u>	63.2	12.8
MT 1908	MT1338/13500539	<u>170.7</u>	29.6	73.6	63.0	14.3
MT 1909	MT1338/13500539	171.7	29.4	86.8	63.8	13.5
MT 1910	MT1338/MT1348	172.0	31.4	84.4	63.2	13.7
MT 1911	MT1338MT1234	173.3	31.0	<u>88.6</u>	64.1	13.5
MT 1912	MT1338MT1234	176.7	30.4	81.3	63.7	13.9
MT 1913	MT1338MT1234	172.0	31.0	80.9	63.0	<u>15.7</u>
MT 1914	VIDA/MT0945	173.0	29.6	86.6	63.1	13.8
MT 1915	MT1203/EGAN	172.7	30.6	77.0	61.9	14.3
MT 1916	MT1338/SD4181	172.0	30.4	85.7	63.5	13.9
MT 1917	MT1338/SD4181	172.0	31.9	77.3	<u>64.9</u>	13.9
MT 1918	MT1338/BW483	172.0	31.6	79.1	62.9	<u>14.9</u>
MT 1919	MT1203/MT1236	171.7	29.9	<u>88.0</u>	60.9	<u>15.0</u>
MT 1920	MT1203/MT1236	171.7	29.9	86.5	61.9	13.4
MT 1921	MT1203/MT1236	172.3	31.5	82.8	62.0	14.3
MT 1922	VIDA/MT1236	174.3	31.0	<u>93.4</u>	62.4	13.3
MT 1923	VIDA/MT1236	172.0	32.8	<u>88.9</u>	61.3	<u>14.9</u>
MT 1924	MT1316/MN01333-A	<u>170.3</u>	29.9	82.5	<u>64.8</u>	14.0
MT 1925	VIDA/SD4264	172.3	31.9	<u>90.9</u>	<u>64.6</u>	12.7
MT 1926	MT1316/MT0945	172.7	30.3	85.4	61.5	12.7
MT 1927	MT1203/MT1234	175.3	31.5	<u>94.4</u>	61.7	13.4
MT 1928	MT1338/MT1319	<u>171.0</u>	29.1	80.6	62.3	13.2
MT 1929	MT1316/MT1319	171.7	32.0	<u>91.6</u>	62.3	13.5
MT 1930	MT1316/MT1319	<u>170.0</u>	29.5	83.8	62.3	13.5
MT 1931	MT1316/MT1319	172.0	29.4	<u>89.1</u>	62.7	14.0
MT 1932	VIDA/MT1319	171.7	31.0	<u>90.8</u>	62.0	13.5
MT 1933	VIDA/MT1319	171.3	30.8	<u>87.9</u>	63.3	13.3
MT 1934	VIDA/MT1319	171.7	30.6	<u>95.2</u>	62.3	14.1
MT 1935	VIDA/MT1319	<u>171.0</u>	30.7	<u>88.3</u>	62.4	13.7
MT 1936	MT1338/SD4299	175.0	33.6	<u>95.1</u>	63.3	13.7
MT 1937	MT1316/13500539	172.3	28.6	83.5	63.0	13.6
MT 1938	MT1316/13500539	172.0	32.2	<u>90.0</u>	62.6	14.2
MT 1939	MT1316/13500539	172.3	30.4	<u>92.9</u>	62.9	13.3
MT 1940	MT1316/SD4181	171.3	31.8	86.3	64.5	<u>14.8</u>
MT 1941	MT1316/MT1348	172.3	31.1	85.6	62.6	13.4
MT 1942	MT1316/MT1348	<u>170.7</u>	27.6	<u>87.3</u>	62.9	14.1
MT 1943	MT1203/9263	174.0	33.3	<u>88.2</u>	62.3	12.6
MT 1944	MT1203/9263	<u>170.7</u>	26.8	77.2	61.6	14.2

2019 PRELIMINARY SPRING WHEAT NURSERY, SIDNEY (DRY), (CONTINUED)

LINE	VARIETY/ PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
MT 1945	MT1203/9263	171.7	30.3	79.1	62.6	13.1
MT 1946	VIDA/BW483	175.0	33.2	<u>90.2</u>	64.3	13.8
MT 1947	MT1203/MT1340	171.7	30.2	84.0	62.2	13.7
MT 1948	MT1203/MT1340	172.7	28.1	<u>87.5</u>	62.4	14.6
MT 1949	MT1203/MT1340	172.0	28.9	<u>88.4</u>	62.5	<u>14.9</u>
MT 1950	MT1203/MT1340	<u>171.0</u>	30.3	86.9	63.1	14.3
MT 1951	MT1316/EGAN	173.0	32.0	<u>92.7</u>	61.2	14.7
MT 1952	MT1316/SD4299	174.0	31.5	79.2	64.0	13.6
MT 1953	MT1316/SD4299	<u>171.0</u>	29.9	80.1	61.7	13.1
MT 1954	MT1338/MN01333-A	172.0	32.7	69.8	63.6	14.0
MT 1955	MT1316/SD4264	172.7	30.7	83.7	63.5	13.6
MT 1956	MT1338/SD3997	175.7	32.7	86.1	59.9	13.6
MT 1957	MT1338/IDO1202S	175.0	31.2	84.2	62.4	13.8
MT 1958	MT1338/MT1348	<u>170.3</u>	30.8	79.8	63.5	14.5
MT 1959	0249XExGlupro	172.0	31.6	84.0	62.2	13.6
MT 1960	0249XExGlupro	171.7	29.8	83.0	62.5	14.0
MT 1961	0249XExGlupro	172.0	30.0	<u>87.0</u>	62.5	14.1
MT 1962	08521XMcNeal/Glupro	173.7	32.3	72.3	62.5	14.0
MT 1963	Duclair x McNeal/Glupro	172.0	31.0	79.3	61.9	13.5
MT 1964	Duclair x McNeal/Glupro	171.7	31.6	80.8	61.7	14.3
MT 1965	Duclair x McNeal/Glupro	172.0	32.8	<u>88.7</u>	61.4	14.2
MT 1966	VIDA/SxD3 (1052)	175.3	32.8	<u>90.6</u>	63.2	14.3
MT 1967	VIDA/SxD3 (1052)	177.3	32.7	<u>88.7</u>	63.7	13.1
MT 1968	VIDA/SxD3 (1052)	175.3	31.6	73.8	63.2	<u>14.8</u>
MT 1969	VIDA/SxD19 (1130)	175.7	34.0	76.7	62.0	12.9
MT 1970	VIDA/SxD19 (1130)	176.3	<u>36.9</u>	<u>88.2</u>	62.7	13.2
MT 1971	VIDA/SxD31 (1310)	173.7	31.0	<u>92.2</u>	62.6	13.1
MT 1972	VIDA/SxD47 (1364)	176.3	33.2	83.1	62.1	12.0
MT 1973	VIDA/SxD47 (1364)	178.0	31.4	<u>92.6</u>	61.7	11.5
MT 1974	VIDA/SxD53 (1393)	<u>170.0</u>	31.2	79.7	60.5	14.7
MT 1975	VIDA/SxD53 (1393)	172.0	33.0	77.9	61.6	14.3
MT 1976	VIDA/SxD65 (1442)	175.3	31.1	81.0	62.4	<u>15.8</u>
CI 13596	FORTUNA	175.3	<u>36.7</u>	71.9	62.5	13.0
PI 574642	MCNEAL	176.0	31.4	86.6	62.9	12.5
ND 695	REEDER	172.0	33.2	<u>90.6</u>	63.4	14.1
PI 633974	CHOTEAU	175.0	30.2	86.7	62.5	14.1
PI 642366	VIDA	175.3	31.5	<u>88.3</u>	62.7	12.7
	MEAN	172.9	31.2	85.3	62.6	13.7
	C.V.	0.4	4.1	7.1	0.4	4.8
	PROBABILITY (ENTRY)	<0.001	<0.001	<0.001	<0.001	<0.001
	LSD(0.05)	1.2	2.1	10.1	0.4	1.1
	LATTICE RE(%) <sup>1)</sup>	102.2	100.7	109.0	106.1	202.5

Underlined : highest or earliest value

Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

1) Adjusted means provided for Lattice RE% values equal to or greater than 105%

2019 REGIONAL HARD RED SPRING WHEAT NURSERY GROWN AT BOZEMAN

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
Marquis	CHECK	194.3	<u>51.0</u>	53.1	57.5	15.3
Chris	CHECK	193.3	46.6	53.8	57.2	<u>15.9</u>
Prosper	CHECK	193.3	38.0	<u>87.0</u>	58.4	13.4
Linkert	CHECK	191.7	31.3	72.4	58.9	15.5
Boost	CHECK	194.7	36.3	<u>87.6</u>	57.5	14.7
MN15005-4	Prosper/MN08301-6//Norden	195.0	30.9	<u>95.1</u>	58.4	14.2
MN15012-3	MN06075-4/MN10428-4	194.0	32.7	<u>89.7</u>	59.7	14.4
MN15119-2	MN02072-7/MN-Washburn sel	193.0	33.1	70.4	58.0	14.1
MN15136-6	MN-Washburn sel/Prosper	193.0	36.1	<u>91.4</u>	58.7	14.0
MN15195-5	MN10312/MN07199-6	195.0	33.3	<u>98.0</u>	59.5	14.0
SD4708	ADVANCE/BRICK	<u>188.0</u>	36.3	79.7	57.7	15.0
SD4719	SD4218/GLENN	192.0	39.6	<u>86.2</u>	59.3	14.0
SD4772	SD4477/SELECT	<u>187.3</u>	33.9	77.9	58.0	15.2
SD4775	SD4477/SD4178	193.7	37.2	79.0	57.4	15.1
SD4816	SD4243/SD4178	191.7	34.4	78.3	57.7	14.7
NDHRS16-13-97	ND709-9/ND2902	193.0	37.1	<u>91.2</u>	59.2	14.5
NDHRS16-14-41	CA-904-742/STEELE-ND	194.7	35.1	<u>96.9</u>	59.2	14.3
NDHRS16-14-36	BARLOW/GRANITE	190.3	38.5	83.5	<u>60.8</u>	14.2
NDHRS16-14-126	ND804/FREYR	189.0	36.3	<u>86.2</u>	59.7	15.0
NDSW16027	MOTT//CHOTEAU/CAP20	193.0	38.8	75.9	57.7	15.6
MT 1621	MT1148/MT1133	<u>187.7</u>	33.4	84.5	58.0	14.6
MT 1767	12SR225/12F5 827	<u>187.3</u>	33.6	82.1	56.9	14.8
NH056	BA51*B92/BW961//BW932	191.7	36.5	<u>96.2</u>	58.9	15.3
NH057	BA51*B92/BW961//BW932	192.0	37.2	<u>98.2</u>	59.6	14.8
NH058	BW485/BW455//BW968	190.0	35.3	84.2	58.7	14.9
BW5060	BW485/BW961	191.7	32.7	77.0	57.8	15.1
BW1067	BW928/BW431	189.3	36.9	<u>92.5</u>	58.8	15.4
BW1069	BW430/BW897	189.7	38.5	<u>88.5</u>	58.0	15.3
NP11100135-1	03S0427-6/SY SOREN	192.0	32.4	80.2	58.6	14.8
NP11100245-26	03S0352-22/04S0258-12	189.7	30.7	76.8	59.0	14.6
NP11100267-10	05S0242-11/JENNA	189.0	31.7	76.4	56.1	14.8
NP11100273-23	05S0271-25/05S0242-11	<u>188.3</u>	30.4	85.0	57.2	14.7
NP12100602-18	08S0031-9/04S0258-12	189.3	31.4	80.5	59.4	15.0
LNR16-2076	411001008/LNR100562	197.0	33.4	67.4	57.9	11.6
LNR16-1223	LNR100188/LNR100557	197.0	32.5	76.1	59.0	12.8
LNR16-1156	LNR100188/BRL10034	192.3	30.1	15.1	59.1	14.6
LNR15-1512	MS-STINGRAY/RWG23	191.7	34.6	67.3	57.4	15.1
LNR15-1751	N10-0182/RB07	190.7	31.4	61.3	57.8	15.0
LNR15-1405	LNR11-0954/SABIN	193.0	36.7	72.5	57.1	14.1
	AVERAGE	191.8	35.3	79.4	58.4	14.6
	C.V.	0.4	3.1	9.9	1 Rep	1 Rep
	PROBABILITY (LINE)	<0.001	<0.001	<0.001	1 Rep	1 Rep
	LSD(0.05)	1.3	1.8	12.8	1 Rep	1 Rep

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

**2019 WESTERN REGIONAL HARD SPRING WHEAT NURSERY GROWN AT BOZEMAN**

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)
Patwin 515		193.0	25.3	84.0	56.2
Glee		188.7	34.1	91.1	58.8
WB9518		191.0	29.7	82.6	57.9
Jefferson		189.0	33.2	83.2	59.5
UI Platinum	Blanca Grande/Jerome	<u>184.7</u>	28.7	79.2	57.6
Alum		193.0	35.9	75.7	<u>60.4</u>
IDO1805S	Lassik // JFSN*2/Alsen	192.3	31.8	<u>96.6</u>	59.0
IDO1804S	Grandin*3/Js-12-Mu-6//2*JFSN/WA8123	191.0	31.6	<u>101.7</u>	58.0
10PN2018-12	DIVA/03S0427-7	194.0	<u>36.0</u>	90.9	58.2
HRS12026-5	HR07008-1/WA 8166	192.0	<u>37.2</u>	86.0	59.4
HRS12094-5	HR07008-1/HR07059-1	190.7	<u>37.4</u>	<u>98.8</u>	60.3
HW12005-6	WA 8163/HW08022-1	188.3	35.0	<u>96.7</u>	59.2
HRS13003-5	WA 8166/HR07068-6	189.7	<u>36.3</u>	80.3	60.3
AVERAGE		190.6	33.2	88.2	58.8
C.V.		0.2	2.8	5.1	1REP
PROBABILITY (LINE)		<0.001	<0.001	<0.001	1REP
LSD(0.05)		0.6	1.5	7.5	1REP

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

**2019 WESTERN REGIONAL SOFT SPRING WHEAT NURSERY GROWN AT BOZEMAN**

LINE	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)
ALPOWA	Fielder/Potam 70//Walladay3/Walladay/Potam 70	192.3	34.6	89.8	59.6
LOUISE	Wakanz/Wawawai	193.0	<u>36.1</u>	<u>97.4</u>	60.4
WB6121		<u>188.3</u>	30.1	88.0	59.3
UI Stone		<u>188.3</u>	33.4	<u>94.8</u>	58.5
IDO1404S	IDO610/2*IDO629, Waxy?	191.7	33.1	<u>103.6</u>	59.0
SW13034-6	DIVA/SW07020-1	192.3	<u>36.4</u>	92.6	59.4
SWBC1304-5	SW13019/LOUISE	194.3	33.8	<u>101.1</u>	<u>61.2</u>
AVERAGE		191.5	33.9	95.3	59.6
C.V.		0.2	1.4	5.8	1REP
PROBABILITY (LINE)		<0.001	<0.001	<0.05	1REP
LSD(0.05)		0.8	0.9	9.9	1REP

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 UNIFORM REGIONAL DURUM NURSERY GROWN AT BOZEMAN

LINE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)
MOUNTRAIL	194.7	40.1	88.1	59.9
ALKABO	<u>193.3</u>	38.4	87.0	60.0
DIVIDE	194.7	41.5	85.0	59.7
CARPIO	195.7	41.2	<u>92.5</u>	60.2
JOPPA	<u>193.7</u>	40.1	<u>96.8</u>	61.2
NDGRANO	195.7	39.5	<u>93.9</u>	61.6
NDRIVELAND	195.7	42.7	84.8	59.6
D09555	195.7	39.1	85.1	61.0
D111068	195.3	38.7	<u>94.3</u>	62.0
D13500	195.7	43.7	85.7	60.8
D13720	196.7	<u>45.5</u>	87.6	61.6
D13750	196.7	43.0	72.9	60.1
D13899	197.7	<u>46.1</u>	82.7	60.7
D14053	195.3	42.2	87.0	61.5
D14056	<u>194.0</u>	42.9	86.3	60.6
D14115	196.0	41.5	<u>90.7</u>	61.1
D14935	196.0	40.4	89.3	59.3
D141103	196.0	43.9	79.3	<u>62.1</u>
D15051	<u>193.3</u>	39.7	85.6	60.6
D15115	196.0	42.4	<u>99.8</u>	61.2
D15262	196.7	<u>45.9</u>	81.6	61.6
D15428	196.7	43.6	77.1	60.8
D15574	194.7	44.1	<u>92.4</u>	60.8
D15677	<u>194.0</u>	40.9	<u>93.9</u>	59.5
D15739	195.3	41.2	85.6	60.7
D15838	194.3	42.7	88.5	60.5
D15841	194.7	42.2	82.6	60.4
D15935	195.7	42.2	<u>91.4</u>	60.5
D15937	195.7	39.9	90.3	61.0
D15946	195.7	39.1	<u>93.3</u>	59.9
D151012	194.7	38.2	86.9	60.5
D151190	<u>193.7</u>	42.3	78.2	60.2
AVERAGE	195.3	41.7	87.4	60.6
C.V.	0.3	3.0	6.6	1REP
PROBABILITY (LINE)	<0.001	<0.001	<0.001	1REP
LSD(0.05)	0.9	2.0	9.4	1REP

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

3) All lines showed no lodging and FHB

**2019 OVERALL AGRONOMIC SUMMARY FOR SPRING WHEAT OFF-STATION NURSERY GROWN IN 15 ENVIRONMENTS,  
INCLUDING 13 DRYLAND AND 2 IRRIGATED ENVIRONMENTS ACROSS MONTANA**

LINE	VARIETY / PEDIGREE	YIELD (BU/AC)			GRAIN PROTEIN (%)			HEADING DATE (JULIAN)	HEIGHT (INCHES)	TEST WEIGHT (LB/BU)	SAW FLY CUT (%)	LODGING (%)	FALLING NUMBER
		Total	Rain fed	Irrigation	Total	Rain fed	Irrigation	Total	Total	Total	Total	Total	Total
CI 13596	FORTUNA	53.8	48.0	91.1	14.4	14.4	14.1	184.7	<u>35.9</u>	59.4	6.0	11.5	416.5
ND 695	REEDER	56.3	50.5	94.5	14.8	14.8	14.7	185.3	31.5	59.4	<u>20.0</u>	19.3	401.7
PI633974	CHOTEAU	59.4	53.4	<u>98.7</u>	14.4	14.4	14.5	183.0	29.5	59.0	1.0	7.8	410.1
PI642366	VIDA	<u>65.5</u>	<u>59.8</u>	<u>102.2</u>	13.9	13.9	13.9	185.6	30.4	59.1	3.9	10.0	385.8
PI660981	DUCLAIR	61.7	55.2	<u>103.9</u>	14.3	14.4	14.2	<u>181.2</u>	30.4	58.9	3.7	8.9	393.6
BZ996434	CORBIN	57.6	52.9	87.9	14.4	14.4	14.3	<u>181.0</u>	30.0	59.5	2.4	11.7	406.9
WB9879CLP	WB9879CLP	59.8	52.9	<u>105.1</u>	14.7	14.8	14.6	183.3	29.8	59.3	1.0	8.5	423.2
BZ92413R	WB GUNNISON	57.5	52.4	90.4	13.8	13.9	13.5	183.1	28.9	60.2	0.5	5.5	<u>439.1</u>
AGRIPR10	BRENNAN	53.5	48.3	87.6	15.0	15.0	14.7	<u>180.1</u>	27.9	<u>60.9</u>	<u>20.9</u>	<u>35.4</u>	412.6
AGRIPR14	SY SOREN	58.5	52.1	<u>100.1</u>	14.9	15.0	14.6	182.3	28.6	59.8	<u>13.4</u>	<u>21.7</u>	<u>449.6</u>
PI 671855	EGAN	57.7	52.6	90.6	<u>15.7</u>	<u>15.7</u>	<u>15.8</u>	185.3	30.7	58.8	<u>16.7</u>	<u>21.7</u>	<u>450.4</u>
PI 676978	LANNING	61.5	<u>56.6</u>	93.7	14.5	14.5	14.6	<u>181.7</u>	30.0	59.2	<u>19.2</u>	<u>23.2</u>	393.2
PI 679964	NS PRESSER CLP	60.7	<u>56.1</u>	90.7	13.9	13.8	14.4	186.3	30.9	58.2	5.9	12.2	392.8
AGRIPR141	SY INGMAR	56.8	52.1	87.6	15.0	15.0	15.0	183.4	28.9	<u>60.4</u>	<u>14.3</u>	<u>26.4</u>	<u>450.1</u>
LIMAGR143	LCS PRO	59.3	53.6	96.0	14.4	14.3	14.9	182.3	32.5	59.2	<u>19.4</u>	18.5	387.8
WSCIA	ALUM	59.2	53.4	96.7	14.2	14.2	14.1	184.8	30.8	59.7	5.4	13.1	368.0
PI 690450	DAGMAR	<u>64.7</u>	<u>58.8</u>	<u>103.6</u>	14.6	14.5	14.9	<u>180.7</u>	30.7	59.9	3.0	8.1	<u>433.9</u>
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	61.5	55.2	<u>102.4</u>	15.1	15.2	14.9	<u>180.4</u>	30.0	57.9	3.9	10.1	388.0
MT 1716	MT1274/RB07	<u>62.2</u>	55.4	<u>106.9</u>	14.3	14.3	14.4	181.8	29.7	59.7	<u>13.4</u>	<u>22.3</u>	406.1
MT 1767	12SR225/12F5 827	<u>61.9</u>	55.3	<u>104.9</u>	14.5	14.5	14.7	<u>180.3</u>	30.1	57.7	8.0	13.4	391.8
	MEAN	59.5	53.7	96.7	14.5	14.5	14.5	182.8	30.4	59.3	9.1	15.5	410.1
	PROBABILITY (LINE)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01	<0.001
	LSD (5%)	3.7	3.9	9.0	0.3	0.4	0.6	1.7	0.9	0.7	11.8	14.2	22.5
	No. of environments	15	13	2	15	13	2	3	15	15	2	5	5

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 OFF-STATION : BOZEMAN (IRRIGATION) : 9901

ENTRY	ID	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
1	CI 13596	FORTUNA	192.7	<u>43.6</u>	91.9	59.2	14.1
2	ND 695	REEDER	193.0	39.0	95.5	60.2	14.7
3	PI633974	CHOTEAU	191.0	34.7	97.6	58.6	14.4
4	PI642366	VIDA	193.0	35.8	97.7	58.4	14.1
5	PI660981	DUCLAIR	189.0	35.3	<u>105.6</u>	58.8	14.1
6	BZ996434	CORBIN	187.7	35.5	91.9	59.5	14.7
7	WB9879CLP	WB9879CLP	190.7	36.3	<u>104.0</u>	59.0	14.6
8	BZ92413R	WB GUNNISON	189.3	34.6	87.4	<u>61.0</u>	13.8
9	AGRIPR10	BRENNAN	<u>186.7</u>	31.5	84.6	59.2	14.9
10	AGRIPR14	SY SOREN	190.3	33.3	99.4	60.3	14.8
11	PI 671855	EGAN	193.0	36.8	88.3	59.6	16.3
12	PI 676978	LANNING	190.7	35.0	87.0	59.8	15.0
13	PI 679964	NS PRESSER CLP	194.0	36.6	90.5	57.1	14.5
14	AGRIPR141	SY INGMAR	190.0	33.8	90.2	59.5	15.1
15	LIMAGR143	LCS PRO	190.3	38.5	<u>99.8</u>	60.5	15.2
16	WSCIA	ALUM	193.0	36.7	98.1	<u>61.0</u>	14.3
17	PI 690450	DAGMAR	188.3	35.4	<u>100.4</u>	59.4	15.2
18	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	188.0	34.2	<u>100.0</u>	57.9	14.8
19	MT 1716	MT1274/RB07	189.0	35.2	<u>108.5</u>	58.9	14.5
20	MT 1767	12SR225/12F5 827	186.7	34.8	98.7	58.2	14.6
MEAN			190.3	35.8	95.8	59.3	14.7
C.V.			0.2	2.2	5.6	1REP	1REP
PROBABILITY (ENTRY)			<0.001	<0.001	<0.001	1REP	1REP
LSD(0.05)			0.7	1.3	8.9	1REP	1REP

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 OFF-STATION : NARC - TURNER (DRY) : 9951

ENTRY	ID	VARIETY / PEDIGREE	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	FALLING NO.
1	CI 13596	FORTUNA	<u>33.8</u>	46.9	58.0	15.1	447.2
2	ND 695	REEDER	28.7	50.8	57.0	15.9	417.5
3	PI633974	CHOTEAU	26.5	53.2	56.2	15.5	424.1
4	PI642366	VIDA	28.6	<u>58.5</u>	57.0	14.9	374.3
5	PI660981	DUCLAIR	28.9	53.7	56.1	15.3	405.3
6	BZ996434	CORBIN	27.3	52.2	57.2	15.5	446.5
7	WB9879CLP	WB9879CLP	27.1	53.8	57.1	15.8	443.8
8	BZ92413R	WB GUNNISON	24.2	47.5	<u>58.8</u>	14.3	435.6
9	AGRIPR10	BRENNAN	25.4	51.6	<u>59.7</u>	15.4	440.7
10	AGRIPR14	SY SOREN	27.3	52.1	58.1	15.7	<u>500.4</u>
11	PI 671855	EGAN	26.5	49.8	56.1	<u>16.7</u>	466.7
12	PI 676978	LANNING	26.6	<u>55.8</u>	56.0	15.6	415.5
13	PI 679964	NS PRESSER CLP	30.3	<u>57.1</u>	54.9	15.2	406.7
14	AGRIPR141	SY INGMAR	25.2	48.1	<u>58.9</u>	15.7	<u>500.9</u>
15	LIMAGR143	LCS PRO	31.5	<u>58.0</u>	56.5	15.3	399.0
16	WSCIA	ALUM	28.0	52.8	58.2	15.4	361.2
17	PI 690450	DAGMAR	28.7	<u>56.1</u>	58.1	15.5	463.1
18	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	27.1	<u>55.2</u>	54.5	15.8	400.7
19	MT 1716	MT1274/RB07	28.0	51.6	58.0	15.6	393.2
20	MT 1767	12SR225/12F5 827	27.3	49.8	55.4	15.5	402.3
MEAN			27.8	52.7	57.1	15.5	427.2
C.V.			4.8	5.0	1.0	1.6	5.1
PROBABILITY (ENTRY)			<0.001	<0.001	<0.001	<0.001	<0.001
LSD(0.05)			2.2	4.3	1.0	0.4	2.2

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 OFF-STATION : NARC - CHESTER (DRY) : 9953

ENTRY	ID	VARIETY / PEDIGREE	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	SAWFLY CUT (%)	FALLING NO.
1	CI 13596	FORTUNA	<u>40.7</u>	53.6	58.5	15.1	5.3	407
2	ND 695	REEDER	32.8	<u>64.5</u>	59.0	15.4	<u>23.3</u>	412
3	PI633974	CHOTEAU	31.0	55.9	57.8	15.5	1.0	408
4	PI642366	VIDA	32.8	<u>69.9</u>	59.2	14.8	3.7	405
5	PI660981	DUCLAIR	32.6	<u>65.8</u>	58.8	15.0	5.0	404
6	BZ996434	CORBIN	31.9	59.3	59.5	15.3	3.7	412
7	WB9879CLP	WB9879CLP	32.3	60.3	58.2	15.6	1.0	412
8	BZ92413R	WB GUNNISON	30.3	58.6	58.9	14.5	0.7	<u>450</u>
9	AGRIPR10	BRENNAN	30.6	56.0	<u>61.5</u>	15.4	<u>25.0</u>	372
10	AGRIPR14	SY SOREN	29.2	61.8	59.6	15.4	15.0	<u>450</u>
11	PI 671855	EGAN	32.0	63.6	56.8	<u>16.4</u>	21.7	<u>442</u>
12	PI 676978	LANNING	31.1	61.3	58.5	15.6	<u>31.7</u>	390
13	PI 679964	NS PRESSER CLP	33.9	62.3	57.4	15.1	6.7	388
14	AGRIPR141	SY INGMAR	31.5	62.6	59.9	15.4	<u>23.3</u>	<u>442</u>
15	LIMAGR143	LCS PRO	35.2	56.4	56.5	15.3	<u>31.7</u>	407
16	WSCIA	ALUM	33.3	53.3	54.7	<u>16.4</u>	6.7	340
17	PI 690450	DAGMAR	33.1	<u>69.6</u>	<u>60.5</u>	15.3	5.0	<u>438</u>
18	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	32.9	62.9	58.0	15.7	3.7	386
19	MT 1716	MT1274/RB07	31.0	64.3	<u>60.3</u>	15.1	16.7	<u>436</u>
20	MT 1767	12SR225/12F5 827	32.1	62.5	57.7	15.6	13.7	410
MEAN			32.5	61.2	58.6	15.4	12.2	411
C.V.			4.2	5.5	1.3	1.5	46.8	2.4
PROBABILITY (ENTRY)			<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
LSD(0.05)			2.2	5.5	1.3	0.4	9.5	16.5

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 OFF-STATION : NARC - LORING (DRY) : 9955

ENTRY	ID	VARIETY / PEDIGREE	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	FALLING NO.
1	CI 13596	FORTUNA	<u>29.1</u>	47.2	58.9	13.9	402
2	ND 695	REEDER	<u>28.7</u>	53.1	59.3	14.0	394
3	PI633974	CHOTEAU	25.4	49.2	58.8	14.5	404
4	PI642366	VIDA	<u>28.0</u>	<u>65.8</u>	59.3	12.6	376
5	PI660981	DUCLAIR	26.7	53.6	58.2	13.7	380
6	BZ996434	CORBIN	<u>27.2</u>	52.7	59.2	13.8	383
7	WB9879CLP	WB9879CLP	24.5	50.8	58.7	14.8	403
8	BZ92413R	WB GUNNISON	26.9	49.0	<u>60.6</u>	14.2	<u>418</u>
9	AGRIPR10	BRENNAN	23.2	44.2	60.1	15.2	383
10	AGRIPR14	SY SOREN	26.0	55.9	59.8	14.8	407
11	PI 671855	EGAN	<u>27.5</u>	44.1	58.1	<u>16.1</u>	<u>427</u>
12	PI 676978	LANNING	<u>27.0</u>	56.6	58.7	13.9	374
13	PI 679964	NS PRESSER CLP	26.7	<u>63.4</u>	58.4	12.6	372
14	AGRIPR141	SY INGMAR	<u>28.1</u>	55.1	<u>60.5</u>	14.0	393
15	LIMAGR143	LCS PRO	<u>28.7</u>	56.2	58.9	13.5	354
16	WSCIA	ALUM	<u>27.7</u>	56.7	<u>60.4</u>	13.7	365
17	PI 690450	DAGMAR	<u>28.3</u>	55.4	59.3	13.8	405
18	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	24.5	50.9	57.3	14.5	384
19	MT 1716	MT1274/RB07	26.9	57.7	59.7	13.8	360
20	MT 1767	12SR225/12F5 827	<u>27.8</u>	54.1	57.4	14.3	358
MEAN			26.9	53.6	59.1	14.1	387
C.V.			5.0	7.0	0.6	2.1	2.2
PROBABILITY (ENTRY)			<0.001	<0.001	<0.001	<0.001	<0.001
LSD(0.05)			2.2	6.2	0.5	0.5	14.0

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 OFF-STATION : NARC - LOMA (DRY) : 9957

ENTRY	ID	VARIETY / PEDIGREE	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	SAWFLY CUT (%)	FALLING NO.
1	CI 13596	FORTUNA	<u>39.7</u>	31.8	53.7	<u>16.3</u>	6.7	427
2	ND 695	REEDER	32.7	25.7	51.5	<u>16.5</u>	<u>16.7</u>	392
3	PI633974	CHOTEAU	29.6	<u>48.5</u>	54.7	15.7	1.0	428
4	PI642366	VIDA	32.9	<u>48.8</u>	<u>55.8</u>	15.7	4.0	405
5	PI660981	DUCLAIR	31.6	<u>47.8</u>	55.4	15.7	2.3	385
6	BZ996434	CORBIN	32.6	<u>46.8</u>	<u>55.9</u>	<u>16.6</u>	1.0	402
7	WB9879CLP	WB9879CLP	30.5	45.9	<u>56.2</u>	15.8	1.0	<u>439</u>
8	BZ92413R	WB GUNNISON	30.1	<u>48.6</u>	<u>56.3</u>	16.0	0.3	<u>454</u>
9	AGRIPR10	BRENNAN	26.9	42.8	<u>57.2</u>	15.7	<u>16.7</u>	428
10	AGRIPR14	SY SOREN	27.6	28.3	53.2	<u>16.5</u>	<u>11.7</u>	<u>462</u>
11	PI 671855	EGAN	31.5	43.3	53.2	<u>17.0</u>	<u>11.7</u>	<u>452</u>
12	PI 676978	LANNING	30.4	45.3	52.6	15.6	6.7	395
13	PI 679964	NS PRESSER CLP	32.5	<u>49.2</u>	54.4	15.2	5.0	405
14	AGRIPR141	SY INGMAR	30.7	42.3	<u>56.0</u>	15.8	5.3	<u>463</u>
15	LIMAGR143	LCS PRO	34.8	40.8	54.5	14.9	7.0	401
16	WSCIA	ALUM	32.1	37.9	53.5	<u>16.6</u>	4.0	357
17	PI 690450	DAGMAR	33.2	<u>51.9</u>	<u>56.3</u>	15.6	1.0	<u>459</u>
18	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	31.5	<u>48.0</u>	54.0	<u>16.7</u>	4.0	372
19	MT 1716	MT1274/RB07	25.4	32.6	54.7	16.1	<u>10.0</u>	434
20	MT 1767	12SR225/12F5 827	31.3	<u>47.1</u>	54.0	15.6	2.3	399
MEAN			31.4	42.7	54.7	16.0	5.9	418
C.V.			6.6	8.4	1.9	3.5	73.7	3.7
PROBABILITY (ENTRY)			<0.001	<0.001	<0.001	<0.01	<0.001	<0.001
LSD(0.05)			3.4	6.0	1.7	0.9	7.2	25.3

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 OFF-STATION : WTARC - CONRAD (IRRI) : 9919

ENTRY	ID	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	LODGING (%)
1	CI 13596	FORTUNA	<u>41.7</u>	90.2	<u>63.7</u>	14.0	8.3
2	ND 695	REEDER	37.7	93.4	<u>62.4</u>	<u>14.7</u>	<u>13.3</u>
3	PI633974	CHOTEAU	35.0	99.8	62.2	14.5	6.7
4	PI642366	VIDA	35.0	106.7	61.2	13.6	10.7
5	PI660981	DUCLAIR	34.3	102.2	62.0	14.2	6.7
6	BZ996434	CORBIN	33.7	83.9	<u>62.7</u>	13.9	8.3
7	WB9879CLP	WB9879CLP	34.3	106.2	<u>62.7</u>	14.5	11.3
8	BZ92413R	WB GUNNISON	32.7	93.4	62.1	13.1	5.0
9	AGRIPR10	BRENNAN	33.0	90.5	<u>63.8</u>	14.5	11.7
10	AGRIPR14	SY SOREN	32.7	100.7	<u>63.5</u>	14.4	11.7
11	PI 671855	EGAN	36.3	92.9	<u>62.6</u>	<u>15.2</u>	<u>16.7</u>
12	PI 676978	LANNING	37.3	100.3	<u>62.8</u>	14.1	<u>18.3</u>
13	PI 679964	NS PRESSER CLP	34.7	90.9	60.4	14.3	<u>13.3</u>
14	AGRIPR141	SY INGMAR	32.7	85.0	<u>63.7</u>	<u>14.9</u>	8.3
15	LIMAGR143	LCS PRO	38.7	92.2	<u>63.5</u>	14.6	<u>13.3</u>
16	WSCIA	ALUM	37.3	95.3	62.2	13.9	11.7
17	PI 690450	DAGMAR	36.3	106.7	<u>63.0</u>	14.6	11.7
18	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	34.7	104.7	62.2	<u>15.0</u>	<u>13.3</u>
19	MT 1716	MT1274/RB07	35.7	105.3	<u>63.0</u>	14.2	<u>13.3</u>
20	MT 1767	12SR225/12F5 827	36.0	111.0	60.9	<u>14.8</u>	<u>13.3</u>
MEAN			35.5	97.6	62.5	14.3	11.4
C.V.			4.8	11.1	1.5	2.6	33.3
PROBABILITY (ENTRY)			<0.001	ns	<0.01	<0.001	<0.05
LSD(0.05)			2.8	-	1.5	0.6	6.3

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 OFF-STATION : WTARC - CUT BANK (DRY) : 9960

ENTRY	ID	VARIETY / PEDIGREE	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	LODGING (%)
1	CI 13596	FORTUNA	<u>35.3</u>	56.3	58.0	13.9	4.0
2	ND 695	REEDER	30.7	64.1	<u>60.1</u>	13.9	3.0
3	PI633974	CHOTEAU	31.3	63.7	57.6	13.4	2.0
4	PI642366	VIDA	30.0	<u>69.8</u>	57.1	13.9	2.0
5	PI660981	DUCLAIR	33.0	68.3	57.1	14.5	2.0
6	BZ996434	CORBIN	29.3	60.5	57.8	14.2	3.0
7	WB9879CLP	WB9879CLP	34.0	64.1	58.3	14.7	4.7
8	BZ92413R	WB GUNNISON	31.7	69.1	59.3	14.1	4.7
9	AGRIPR10	BRENNAN	30.7	<u>79.8</u>	<u>61.6</u>	14.3	3.0
10	AGRIPR14	SY SOREN	32.0	<u>74.4</u>	<u>60.4</u>	13.9	3.0
11	PI 671855	EGAN	35.0	65.9	59.1	14.7	3.0
12	PI 676978	LANNING	30.7	67.4	58.9	14.4	2.0
13	PI 679964	NS PRESSER CLP	32.0	<u>70.9</u>	56.9	14.3	2.0
14	AGRIPR141	SY INGMAR	30.0	<u>76.2</u>	<u>60.6</u>	15.0	2.0
15	LIMAGR143	LCS PRO	30.3	<u>70.0</u>	57.2	14.5	2.0
16	WSCIA	ALUM	34.3	<u>71.6</u>	59.2	14.5	4.7
17	PI 690450	DAGMAR	31.0	<u>74.0</u>	59.5	14.3	5.0
18	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	32.3	<u>69.9</u>	56.1	<u>15.3</u>	4.0
19	MT 1716	MT1274/RB07	31.3	<u>79.2</u>	58.7	14.2	4.0
20	MT 1767	12SR225/12F5 827	31.3	65.2	56.5	13.6	6.7
MEAN			31.8	69.0	58.5	14.3	3.3
C.V.			9.3	8.9	1.9	7.2	63.5
PROBABILITY (ENTRY)			ns	<0.01	<0.001	ns	ns
LSD(0.05)			-	10.1	1.8	-	-

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 OFF-STATION : WTARC - CHOTEAU (DRY) : 9962

ENTRY	ID	VARIETY / PEDIGREE	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	LODGING (%)
1	CI 13596	FORTUNA	<u>40.3</u>	76.8	63.0	14.4	20.0
2	ND 695	REEDER	33.7	71.7	61.4	15.5	30.0
3	PI633974	CHOTEAU	33.3	<u>77.7</u>	61.8	15.7	11.7
4	PI642366	VIDA	33.3	<u>88.1</u>	61.8	14.6	13.3
5	PI660981	DUCLAIR	33.3	70.9	61.7	15.8	10.0
6	BZ996434	CORBIN	34.7	<u>80.8</u>	<u>63.7</u>	14.6	11.7
7	WB9879CLP	WB9879CLP	31.3	<u>79.7</u>	61.9	15.6	10.0
8	BZ92413R	WB GUNNISON	31.7	72.8	62.5	13.8	6.7
9	AGRIPR10	BRENNAN	29.7	42.3	62.7	16.4	<u>90.0</u>
10	AGRIPR14	SY SOREN	30.3	70.7	62.7	15.8	46.7
11	PI 671855	EGAN	33.7	72.7	62.1	16.4	33.3
12	PI 676978	LANNING	30.7	70.4	61.8	16.2	30.0
13	PI 679964	NS PRESSER CLP	33.3	76.1	60.5	15.0	20.0
14	AGRIPR141	SY INGMAR	29.7	57.5	<u>63.3</u>	16.2	66.7
15	LIMAGR143	LCS PRO	36.3	76.3	62.8	15.4	23.3
16	WSCIA	ALUM	33.3	75.6	62.4	14.4	16.7
17	PI 690450	DAGMAR	34.0	<u>87.4</u>	62.5	15.8	10.0
18	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	32.0	69.8	60.8	<u>17.4</u>	10.0
19	MT 1716	MT1274/RB07	32.3	<u>84.6</u>	<u>63.6</u>	14.9	30.0
20	MT 1767	12SR225/12F5 827	33.0	<u>84.2</u>	61.0	15.4	13.3
MEAN			33.0	74.3	62.2	15.5	25.2
C.V.			5.3	9.1	0.6	2.2	31.6
PROBABILITY (ENTRY)			<0.001	<0.001	<0.001	<0.001	<0.001
LSD(0.05)			2.9	11.2	0.6	0.6	13.2

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 OFF-STATION : WTARC - DEVON (DRY) : 9963

ENTRY	ID	VARIETY / PEDIGREE	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	LODGING
1	CI 13596	FORTUNA	<u>33.0</u>	40.4	<u>61.9</u>	13.6	5.0
2	ND 695	REEDER	27.7	43.3	<u>61.0</u>	14.0	<u>6.7</u>
3	PI633974	CHOTEAU	26.7	48.4	<u>61.6</u>	13.6	2.0
4	PI642366	VIDA	28.0	<u>57.6</u>	<u>61.0</u>	12.9	4.0
5	PI660981	DUCLAIR	28.3	42.3	59.9	13.7	4.0
6	BZ996434	CORBIN	26.7	41.1	<u>62.1</u>	13.6	4.0
7	WB9879CLP	WB9879CLP	26.7	42.2	60.6	<u>14.5</u>	3.0
8	BZ92413R	WB GUNNISON	26.3	46.5	<u>61.6</u>	13.1	3.0
9	AGRIPR10	BRENNAN	25.0	34.3	<u>62.6</u>	<u>14.8</u>	4.0
10	AGRIPR14	SY SOREN	26.7	42.4	<u>61.4</u>	<u>14.5</u>	4.0
11	PI 671855	EGAN	27.7	41.8	59.9	<u>14.9</u>	4.0
12	PI 676978	LANNING	29.3	55.8	<u>61.3</u>	<u>14.4</u>	4.0
13	PI 679964	NS PRESSER CLP	30.0	45.8	60.8	12.5	4.0
14	AGRIPR141	SY INGMAR	26.0	37.8	<u>62.2</u>	<u>15.0</u>	5.0
15	LIMAGR143	LCS PRO	28.0	35.3	<u>61.3</u>	<u>14.2</u>	4.0
16	WSCIA	ALUM	27.3	40.5	<u>62.5</u>	13.4	4.0
17	PI 690450	DAGMAR	27.7	44.0	60.5	<u>14.6</u>	4.0
18	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	26.7	39.5	58.3	<u>14.9</u>	3.0
19	MT 1716	MT1274/RB07	27.0	50.3	<u>61.8</u>	<u>14.3</u>	4.0
20	MT 1767	12SR225/12F5 827	25.7	38.9	57.5	<u>14.7</u>	2.0
MEAN			27.5	43.4	61.0	14.1	3.9
C.V.			5.8	19.9	1.8	4.4	41.2
PROBABILITY (ENTRY)			<0.001	ns	<0.001	<0.001	ns
LSD(0.05)			2.6	-	1.8	1.0	-

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 OFF-STATION : WTARC - KNEES (DRY) : 9967

ENTRY	ID	VARIETY / PEDIGREE	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	LODGING
1	CI 13596	FORTUNA	<u>39.3</u>	59.1	<u>60.0</u>	14.6	20.0
2	ND 695	REEDER	34.3	58.2	58.0	15.0	43.3
3	PI633974	CHOTEAU	32.0	66.4	59.0	14.8	16.7
4	PI642366	VIDA	32.0	65.6	59.5	13.8	20.0
5	PI660981	DUCLAIR	33.0	<u>75.4</u>	59.0	15.1	21.7
6	BZ996434	CORBIN	32.0	68.1	58.1	14.7	31.7
7	WB9879CLP	WB9879CLP	32.7	70.1	59.5	14.7	13.3
8	BZ92413R	WB GUNNISON	31.0	63.1	59.0	14.2	8.3
9	AGRIPR10	BRENNAN	29.3	61.8	59.9	15.0	<u>68.3</u>
10	AGRIPR14	SY SOREN	29.3	62.9	58.0	14.8	43.3
11	PI 671855	EGAN	31.0	66.1	58.9	<u>16.1</u>	<u>51.7</u>
12	PI 676978	LANNING	32.7	68.8	57.7	14.7	<u>61.7</u>
13	PI 679964	NS PRESSER CLP	33.3	66.1	57.3	14.5	21.7
14	AGRIPR141	SY INGMAR	29.0	61.3	58.4	13.8	50.0
15	LIMAGR143	LCS PRO	36.3	61.3	56.9	14.9	50.0
16	WSCIA	ALUM	32.7	72.1	59.8	14.0	28.3
17	PI 690450	DAGMAR	33.3	72.5	59.9	14.9	10.0
18	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	33.7	74.9	58.7	14.6	20.0
19	MT 1716	MT1274/RB07	32.7	61.6	59.3	13.9	<u>60.0</u>
20	MT 1767	12SR225/12F5 827	33.0	71.8	57.1	14.4	31.7
MEAN			32.6	66.4	58.7	14.6	33.6
C.V.			3.8	11.8	2.1	6.3	30.6
PROBABILITY (ENTRY)			<0.001	ns	ns	ns	<0.001
LSD(0.05)			2.0	-	-	-	17.0

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 OFF-STATION : CARC - MOCCASIN (NO TILL) : 9970

ENTRY	ID	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
1	CI 13596	FORTUNA	189.0	<u>39.3</u>	43.5	55.2	<u>14.6</u>
2	ND 695	REEDER	188.0	33.0	49.3	<u>56.7</u>	<u>14.3</u>
3	PI633974	CHOTEAU	187.0	30.3	47.0	55.2	13.6
4	PI642366	VIDA	188.0	31.7	55.1	54.3	13.5
5	PI660981	DUCLAIR	<u>185.0</u>	31.7	48.4	54.0	<u>14.6</u>
6	BZ996434	CORBIN	186.3	32.3	48.0	55.7	13.5
7	WB9879CLP	WB9879CLP	187.0	30.0	48.9	55.9	13.7
8	BZ92413R	WB GUNNISON	186.3	29.0	48.4	56.2	13.3
9	AGRIPR10	BRENNAN	<u>184.7</u>	29.3	52.2	<u>58.9</u>	<u>14.1</u>
10	AGRIPR14	SY SOREN	186.3	27.7	52.3	55.9	<u>14.4</u>
11	PI 671855	EGAN	188.0	31.7	54.5	55.9	<u>14.6</u>
12	PI 676978	LANNING	<u>184.0</u>	30.0	56.4	<u>56.4</u>	13.2
13	PI 679964	NS PRESSER CLP	188.7	31.3	52.9	53.7	13.2
14	AGRIPR141	SY INGMAR	188.0	31.3	58.3	<u>56.4</u>	<u>14.5</u>
15	LIMAGR143	LCS PRO	186.3	35.3	55.2	55.2	13.2
16	WSCIA	ALUM	187.7	31.0	45.4	55.5	13.6
17	PI 690450	DAGMAR	<u>184.7</u>	33.0	58.3	<u>56.9</u>	13.4
18	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	<u>184.3</u>	31.3	<u>60.4</u>	53.5	<u>14.7</u>
19	MT 1716	MT1274/RB07	186.7	31.0	46.4	55.4	13.3
20	MT 1767	12SR225/12F5 827	<u>185.3</u>	31.3	43.9	51.1	<u>14.7</u>
MEAN			186.6	31.6	51.2	55.4	13.9
C.V.			0.5	4.2	16.8	2.8	3.6
PROBABILITY (ENTRY)			<0.001	<0.001	ns	<0.01	<0.001
LSD(0.05)			1.6	2.2	-	2.6	0.8

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 OFF-STATION : CARC - DENTON (DRY) : 9971

ENTRY	ID	VARIETY / PEDIGREE	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
1	CI 13596	FORTUNA	31.7	31.3	56.8	<u>13.9</u>
2	ND 695	REEDER	28.7	<u>40.5</u>	<u>59.3</u>	<u>14.9</u>
3	PI633974	CHOTEAU	26.3	<u>38.3</u>	57.6	13.0
4	PI642366	VIDA	27.3	<u>44.8</u>	57.5	<u>13.3</u>
5	PI660981	DUCLAIR	26.7	<u>41.7</u>	<u>58.3</u>	12.2
6	BZ996434	CORBIN	26.7	34.0	56.4	<u>13.5</u>
7	WB9879CLP	WB9879CLP	28.0	35.3	57.5	<u>13.8</u>
8	BZ92413R	WB GUNNISON	28.0	<u>39.9</u>	<u>60.1</u>	12.0
9	AGRIPR10	BRENNAN	28.0	32.4	<u>59.1</u>	<u>14.0</u>
10	AGRIPR14	SY SOREN	29.0	<u>38.6</u>	<u>58.5</u>	<u>14.2</u>
11	PI 671855	EGAN	28.7	35.4	58.2	<u>14.7</u>
12	PI 676978	LANNING	29.0	<u>43.7</u>	<u>58.7</u>	13.0
13	PI 679964	NS PRESSER CLP	27.7	<u>41.9</u>	57.8	12.2
14	AGRIPR141	SY INGMAR	26.3	35.0	<u>59.0</u>	<u>14.4</u>
15	LIMAGR143	LCS PRO	29.3	35.5	<u>58.7</u>	13.0
16	WSCIA	ALUM	26.0	37.1	<u>59.2</u>	12.6
17	PI 690450	DAGMAR	27.3	<u>40.6</u>	<u>58.9</u>	<u>13.3</u>
18	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	28.3	<u>39.8</u>	56.6	<u>13.4</u>
19	MT 1716	MT1274/RB07	27.7	36.4	57.4	13.2
20	MT 1767	12SR225/12F5 827	27.0	<u>42.8</u>	56.8	12.6
MEAN			27.9	38.3	58.1	13.4
C.V.			5.3	11.7	2.0	7.6
PROBABILITY (ENTRY)			<0.01	<0.05	<0.01	<0.05
LSD(0.05)			2.4	7.4	1.9	1.7

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 OFF-STATION : CARC - GERALDINE (DRY) : 9972

ENTRY	ID	VARIETY / PEDIGREE	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
1	CI 13596	FORTUNA	<u>35.0</u>	41.7	<u>60.9</u>	13.5
2	ND 695	REEDER	31.3	48.7	60.8	13.5
3	PI633974	CHOTEAU	29.0	46.6	60.1	13.4
4	PI642366	VIDA	29.3	<u>55.0</u>	60.3	12.2
5	PI660981	DUCLAIR	29.0	47.0	59.9	12.9
6	BZ996434	CORBIN	28.7	45.4	59.8	13.5
7	WB9879CLP	WB9879CLP	28.7	46.7	60.6	13.8
8	BZ92413R	WB GUNNISON	28.0	43.3	<u>61.3</u>	12.8
9	AGRIPR10	BRENNAN	29.0	48.0	<u>61.9</u>	<u>14.0</u>
10	AGRIPR14	SY SOREN	28.3	48.4	60.2	<u>14.0</u>
11	PI 671855	EGAN	31.3	48.8	59.3	<u>14.7</u>
12	PI 676978	LANNING	29.0	49.8	59.9	13.1
13	PI 679964	NS PRESSER CLP	31.0	46.9	58.7	12.3
14	AGRIPR141	SY INGMAR	28.7	48.7	<u>61.8</u>	13.6
15	LIMAGR143	LCS PRO	31.0	47.2	59.8	13.2
16	WSCIA	ALUM	30.0	47.1	<u>61.9</u>	12.7
17	PI 690450	DAGMAR	29.7	<u>52.7</u>	60.8	13.1
18	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	28.7	47.5	58.3	13.7
19	MT 1716	MT1274/RB07	29.7	<u>50.7</u>	60.6	13.1
20	MT 1767	12SR225/12F5 827	28.3	49.3	58.5	13.3
MEAN			29.7	48.0	60.3	13.3
C.V.			2.3	6.0	1.1	3.7
PROBABILITY (ENTRY)			<0.001	<0.01	<0.001	<0.001
LSD(0.05)			1.1	4.8	1.1	0.8

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 OFF-STATION : CARC - HIGHWOOD (DRY)

ENTRY	ID	VARIETY / PEDIGREE	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)
1	CI 13596	FORTUNA	23.7	43.6	61.9	14.1
2	ND 695	REEDER	<u>26.3</u>	36.9	62.0	<u>14.9</u>
3	PI633974	CHOTEAU	24.3	40.1	63.1	14.0
4	PI642366	VIDA	24.0	44.5	62.5	13.8
5	PI660981	DUCLAIR	22.0	41.6	62.5	13.7
6	BZ996434	CORBIN	23.3	46.4	61.8	13.7
7	WB9879CLP	WB9879CLP	24.0	40.0	62.0	14.3
8	BZ92413R	WB GUNNISON	22.7	42.7	63.0	14.0
9	AGRIPR10	BRENNAN	23.3	40.0	62.6	<u>15.0</u>
10	AGRIPR14	SY SOREN	24.7	43.7	62.8	14.3
11	PI 671855	EGAN	22.7	<u>51.9</u>	61.6	<u>15.5</u>
12	PI 676978	LANNING	24.7	45.0	62.5	13.9
13	PI 679964	NS PRESSER CLP	22.3	43.9	62.6	13.8
14	AGRIPR141	SY INGMAR	23.7	44.4	62.6	<u>14.7</u>
15	LIMAGR143	LCS PRO	23.0	42.5	62.5	13.8
16	WSCIA	ALUM	23.7	42.5	61.5	13.2
17	PI 690450	DAGMAR	23.0	40.4	61.2	<u>14.7</u>
18	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	24.3	41.6	62.7	<u>15.0</u>
19	MT 1716	MT1274/RB07	23.7	45.2	62.1	13.7
20	MT 1767	12SR225/12F5 827	24.7	50.8	63.4	13.8
MEAN			23.7	43.4	62.3	14.2
C.V.			7.3	12.5	1.6	3.9
PROBABILITY (ENTRY)			ns	ns	ns	<0.01
LSD(0.05)			-	-	-	0.9

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 OFF-STATION : NWARC - KALISPELL (DRY)

ENTRY	ID	VARIETY / PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	FALLING No.	1,000 KERNEL Wt. (g)	RUST (%)
1	CI 13596	FORTUNA	172.3	<u>32.1</u>	52.1	61.2	14.8	399.3	39.0	5.3
2	ND 695	REEDER	175.0	27.3	49.2	<u>62.7</u>	14.1	392.5	36.2	3.0
3	PI633974	CHOTEAU	<u>171.0</u>	26.7	<u>58.9</u>	61.2	14.6	387.2	35.8	6.7
4	PI642366	VIDA	175.7	27.0	<u>54.3</u>	61.6	14.2	368.8	35.4	3.0
5	PI660981	DUCLAIR	<u>169.7</u>	<u>29.8</u>	<u>61.0</u>	61.3	14.6	393.2	34.5	2.0
6	BZ996434	CORBIN	<u>169.0</u>	28.1	<u>52.7</u>	62.4	14.2	391.5	39.5	9.3
7	WB9879CLP	WB9879CLP	172.3	25.9	49.7	61.1	14.9	417.5	34.8	5.3
8	BZ92413R	WB GUNNISON	173.7	26.6	51.6	62.6	14.1	437.0	<u>42.9</u>	8.3
9	AGRIPR10	BRENNAN	<u>169.0</u>	23.5	42.1	62.1	15.7	439.2	35.2	5.3
10	AGRIPR14	SY SOREN	<u>170.3</u>	24.4	45.6	62.2	16.1	429.4	32.6	7.7
11	PI 671855	EGAN	175.0	28.6	46.4	60.9	<u>16.7</u>	<u>463.9</u>	36.3	0.0
12	PI 676978	LANNING	<u>170.3</u>	26.0	<u>59.5</u>	62.2	15.4	391.8	37.2	2.0
13	PI 679964	NS PRESSER CLP	176.3	28.3	<u>53.1</u>	61.4	13.7	392.2	34.3	<u>36.7</u>
14	AGRIPR141	SY INGMAR	172.3	27.1	49.5	<u>63.0</u>	16.3	<u>451.6</u>	34.5	1.0
15	LIMAGR143	LCS PRO	<u>170.3</u>	<u>30.6</u>	<u>62.5</u>	<u>62.7</u>	14.5	377.8	39.8	6.0
16	WSCIA	ALUM	173.7	<u>29.0</u>	<u>61.6</u>	<u>62.9</u>	14.3	416.8	40.1	1.0
17	PI 690450	DAGMAR	<u>169.0</u>	26.9	<u>61.1</u>	62.1	14.7	405.0	<u>40.9</u>	7.7
18	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	<u>169.0</u>	28.1	<u>56.8</u>	60.3	15.6	397.2	33.4	0.0
19	MT 1716	MT1274/RB07	<u>169.7</u>	27.8	<u>59.1</u>	61.5	14.6	406.8	29.1	16.7
20	MT 1767	12SR225/12F5 827	<u>169.0</u>	27.3	<u>58.7</u>	60.5	14.5	390.2	34.8	9.3
MEAN			171.6	27.6	54.3	61.8	14.9	407.5	36.3	6.8
C.V.			0.8	7.0	11.1	0.4	1.3	3.2	3.8	92.7
PROBABILITY (ENTRY)			<0.001	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001
LSD(0.05)			2.3	3.2	9.9	0.4	0.3	21.6	2.3	10.4

1) Underlined : highest or earliest value

2) Double underlined : equal value to highest or earliest value within a column based LSD(0.05)

2019 SPRING WHEAT F6 TRIAL, BOZEMAN DRYLAND

ENTRY	ID	PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	STEM SOLID NESS (5-25)
1	1850002	MT 1526/VIDA	190	39.1	95.3	55.9	14.6	10.0
2	1850004	MT 1526/VIDA	193	39.7	85.7	57.5	15.5	12.0
3	1850008	MT 1526/VIDA	189	30.5	71.3	62.3	15.7	17.7
4	1850013	MT 1526/VIDA	191	32.7	79.7	57.7	14.8	18.0
5	1850026	MT 1526/VIDA	191	39.3	111.5	59.4	15.3	13.7
6	1850029	MT 1542/EGAN	193	37.7	93.5	62.2	14.7	13.3
7	1850032	MT 1542/EGAN	193	34.8	112.4	58.3	13.2	16.7
8	1850034	MT 1542/EGAN	189	42.5	45.4	60.9	15.5	11.0
9	1850052	MT 1515/EGAN	191	36.0	72.9	60.3	16.0	14.7
10	1850054	MT 1515/EGAN	193	34.8	82.2	58.2	16.5	8.0
11	1850059	MT 1515/EGAN	190	30.3	78.5	62.2	15.2	21.0
12	1850071	MT 1453/MT 1401	187	38.4	77.2	59.0	15.4	18.7
13	1850078	MT 1453/MT 1401	187	32.9	67.7	58.5	15.7	17.3
14	1850083	MT 1453/MT 1401	189	31.4	85.4	58.3	14.5	20.3
15	1850084	MT 1453/MT 1401	187	38.1	91.7	56.3	15.3	16.0
16	1850089	MT 1453/MT 1401	188	35.6	74.8	58.4	16.1	17.7
17	1850092	MT 1453/MT 1401	189	37.4	112.4	59.2	15.6	15.7
18	1850093	MT 1453/MT 1401	187	33.9	71.3	59.3	16.0	19.7
19	1850097	MT 1453/MT 1401	189	39.4	85.2	57.6	14.5	16.7
20	1850099	MT 1453/MT 1401	189	36.7	84.6	55.7	14.2	18.3
21	1850103	MT 1453/MT 1401	187	36.1	94.6	58.1	14.3	15.0
22	1850105	MT 1453/MT 1401	187	37.2	95.7	58.0	14.9	14.7
23	1850117	MT 1542/YellowstoneXMcneal	190	36.2	64.3	55.5	16.1	14.3
24	1850124	MT 1542/YellowstoneXMcneal	189	39.4	75.4	57.6	16.2	12.3
25	1850139	MT 1524/YellowstoneXMcneal	192	36.7	63.0	60.1	15.6	16.7
26	1850140	MT 1453/MT 1338	187	35.3	94.4	60.7	15.0	12.3
27	1850142	MT 1453/MT 1338	186	35.7	99.8	61.6	14.7	20.0
28	1850143	MT 1453/MT 1338	186	35.3	105.6	59.4	15.7	18.0
29	1850145	MT 1453/MT 1338	189	33.3	99.1	61.4	14.7	12.3
30	1850147	MT 1453/MT 1338	186	32.2	81.3	57.7	14.4	20.7
31	1850151	MT 1453/MT 1338	187	34.1	75.4	58.1	15.8	12.0
32	1850154	MT 1453/MT 1338	188	36.0	90.2	61.2	15.2	19.0
33	1850160	MT 1453/MT 1338	190	32.9	92.1	59.7	14.9	20.3
34	1850162	MT 1453/MT 1338	187	33.4	62.9	58.9	15.2	23.7
35	1850164	MT 1453/MT 1338	188	34.9	102.7	61.6	14.8	17.3
36	1850169	MT 1316/YellowstoneXMcneal	191	34.5	79.0	54.7	15.6	8.3
37	1850171	MT 1316/YellowstoneXMcneal	193	46.0	112.9	59.0	16.6	6.3
38	1850179	MT 1316/YellowstoneXMcneal	190	37.4	78.6	58.6	16.2	9.3
39	1850182	MT 1316/YellowstoneXMcneal	191	37.5	75.7	61.7	15.2	11.3
40	1850186	MT 1316/YellowstoneXMcneal	193	38.9	100.0	59.9	15.9	6.7
41	1850195	MT 1316/ND819	192	35.6	94.2	59.4	14.4	7.0
42	1850197	MT 1316/ND819	189	38.0	96.1	59.8	14.9	8.3
43	1850198	MT 1316/ND819	190	34.1	84.7	60.1	15.1	9.0
44	1850199	MT 1316/ND819	184	34.3	83.7	56.4	15.6	8.7
45	1850206	MT 1316/ND819	190	35.6	85.9	60.8	14.8	10.0

2019 SPRING WHEAT F6 TRIAL, BOZEMAN DRYLAND

ENTRY	ID	PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	STEM SOLID NESS (5-25)
46	18500207	MT 1316/ND819	185	32.2	85.4	54.7	15.8	8.0
47	18500209	MT 1316/ND819	186	30.0	99.7	57.7	15.5	9.0
48	18500210	MT 1316/ND819	190	34.1	105.5	61.2	14.5	10.3
49	18500211	MT 1316/ND819	188	33.8	95.4	58.4	15.5	7.7
50	18500213	MT 1316/ND819	191	37.7	108.6	58.2	14.9	7.0
51	18500223	MTHW0149/McNeal(15PSP2-25)/LP(114)-WC/1074-1	192	37.9	69.3	55.3	13.8	19.7
52	18500231	MT 1524/EGAN	190	38.6	50.0	60.5	17.2	9.0
53	18500247	MT 1542/MT 1338	189	34.6	80.8	59.8	14.4	21.7
54	18500249	MT 1542/MT 1338	189	36.7	92.0	57.6	14.6	21.3
55	18500251	MT 1542/MT 1338	191	35.7	115.5	59.8	14.3	14.7
56	18500255	MT 1542/MT 1338	191	36.5	70.6	58.0	15.6	20.3
57	18500256	MT 1542/MT 1338	192	41.6	63.1	60.3	14.0	14.3
58	18500259	MT 1542/MT 1338	191	39.4	89.6	59.0	15.0	21.7
59	18500263	MT 1542/MT 1338	187	33.7	60.9	58.9	15.2	16.0
60	18500264	MT 1542/MT 1338	189	37.7	78.7	58.9	14.1	17.0
61	18500267	MT 1542/MT 1338	190	34.8	98.3	59.8	14.6	19.7
62	18500273	MT 1542/MT 1338	189	41.3	79.4	58.3	14.7	18.0
63	18500275	MT 1542/MT 1338	193	37.2	105.3	61.1	14.4	18.0
64	18500286	MT 1542/ND819	191	40.8	110.5	59.7	14.7	14.3
65	18500288	MT 1542/ND819	190	36.5	100.2	57.6	15.1	13.7
66	18500293	MT 1542/ND819	189	40.1	108.4	58.5	14.8	9.7
67	18500294	MT 1542/ND819	189	42.1	104.9	57.5	14.5	9.3
68	18500299	MT 1316/BW499	188	31.7	103.5	58.8	14.7	7.7
69	18500301	MT 1316/BW499	188	41.7	87.3	60.2	15.0	7.7
70	18500304	MT 1316/BW499	189	43.4	65.6	58.3	15.7	10.0
71	18500308	MT 1316/BW499	187	33.4	71.0	57.9	16.0	8.7
72	18500310	MT 1316/BW499	186	31.7	86.7	59.9	14.8	10.0
73	18500317	MT 1316/BW499	188	34.1	108.2	57.0	14.7	9.7
74	18500318	MT 1316/BW499	189	37.5	91.2	60.0	14.7	8.0
75	18500319	MT 1316/BW499	188	35.1	102.6	62.1	14.8	7.3
76	18500321	MT 1316/BW499	192	39.1	87.5	58.1	15.2	7.7
77	18500326	MT1317/UC1110/ABG282-290	190	41.6	84.8	59.9	15.1	6.3
78	18500333	MT1317/UC1110/ABG282-290	192	32.0	97.0	54.5	14.3	11.3
79	18500339	MT1317/UC1110/ABG282-290	183	29.4	55.1	59.0	15.6	15.0
80	18500342	MT1317/UC1110/ABG282-290	190	37.2	109.4	61.6	14.6	12.3
81	18500347	MT1317/UC1110/ABG282-290	191	36.7	71.6	58.0	15.6	9.3
82	18500355	MT1317/UC1110/ABG282-290	192	42.2	105.4	59.1	15.4	8.7
83	18500364	MT1317/UC1110/ABG282-290	189	35.1	73.5	60.7	15.7	10.3
84	18500370	MT1317/UC1110/ABG282-290	192	33.9	96.6	58.2	14.5	9.0
85	18500374	MT1317/UC1110/ABG282-290	192	36.5	95.7	59.3	14.1	11.0
86	18500387	MT1317/UC1110/ABG282-290	190	35.6	118.3	57.3	14.5	14.3
87	18500392	MT1317/UC1110/ABG282-290	185	27.9	82.5	57.4	16.0	23.3
88	18500397	MT 1524/ND819	189	38.5	95.5	62.0	14.5	20.7
89	18500398	MT 1524/ND819	187	36.9	82.6	59.8	15.3	23.3
90	18500404	MT 1524/ND819	188	37.4	79.2	57.9	15.2	11.3

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ENTRY	ID	PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	STEM SOLID NESS (5-25)
91	18500408	MT 1524/ND819	189	31.9	96.6	59.7	14.4	10.0
92	18500420	MT 1524/(Bar Nir X Zahir)Xm (14)	189	29.0	86.2	59.7	14.8	11.7
93	18500424	MT 1524/(Bar Nir X Zahir)Xm (14)	189	34.3	97.0	56.7	14.0	25.0
94	18500432	MT1316/UC1110/ABG282-290	189	35.8	91.6	57.8	15.7	10.3
95	18500433	MT1316/UC1110/ABG282-290	183	30.8	89.3	59.0	14.4	9.7
96	18500447	MT1316/UC1110/ABG282-290	190	35.1	84.5	58.6	16.2	7.0
97	18500466	MT1316/UC1110/ABG282-290	193	37.7	57.9	60.3	15.1	6.7
98	18500468	MT1316/UC1110/ABG282-290	191	32.0	78.8	61.3	14.0	8.7
99	18500471	MT1316/UC1110/ABG282-290	190	34.4	77.4	56.6	15.4	7.0
100	18500476	MT1316/UC1110/ABG282-290	188	30.1	103.7	54.7	13.6	11.7
101	18500492	MT1316/UC1110/ABG282-290	188	35.6	89.5	58.6	14.6	8.0
102	18500496	MT 1316/MT 1451	191	38.1	97.8	58.0	15.4	14.0
103	18500505	MT 1316/MT 1451	189	36.9	87.0	57.9	13.9	10.3
104	18500511	MT 1316/MT 1451	191	37.7	84.9	59.2	14.9	22.3
105	18500519	MT 1316/MT 1451	190	34.3	104.1	56.7	14.9	12.0
106	18500521	MT 1316/MT 1451	190	33.9	99.3	58.1	14.6	9.3
107	18500525	MT 1316/MT 1451	190	35.1	96.5	56.3	14.7	16.7
108	18500530	MT 1316/VIDA	190	31.7	88.1	57.6	15.2	14.0
109	18500539	MT 1316/VIDA	190	37.7	84.4	62.2	14.7	13.0
110	18500545	MT 1316/VIDA	190	34.5	72.3	58.4	15.6	12.3
111	18500548	MT 1316/VIDA	189	33.4	110.5	58.2	15.2	12.0
112	18500551	MT 1401/ND 819	191	39.6	78.1	58.0	14.7	8.0
113	18500553	MT 1401/ND 819	188	39.3	82.7	59.7	15.5	10.7
114	18500562	MT 1401/ND 819	187	35.1	105.1	58.3	15.1	14.7
115	18500564	MT 1401/ND 819	190	37.2	70.9	59.7	15.6	8.7
116	18500566	MT 1401/ND 819	187	34.1	95.8	55.9	14.9	8.7
117	18500575	MT 1524/12SR93/09 3-5	189	31.2	76.1	61.2	15.1	24.3
118	18500579	MT 1524/12SR93/09 3-5	188	36.1	73.9	60.1	15.2	18.3
119	18500587	MT 1524/12SR93/09 3-5	192	43.7	114.0	61.5	15.5	18.0
120	18500589	MT 1524/12SR93/09 3-5	188	32.5	79.7	60.6	14.8	18.7
121	18500594	MT 1524/12SR93/09 3-5	190	33.9	81.7	57.3	15.0	7.7
122	18500596	MT 1542/MT 1528	189	37.2	91.6	59.4	15.4	23.3
123	18500600	MT 1542/MT 1528	189	34.6	86.4	59.6	14.8	25.0
124	18500601	MT 1542/MT 1528	187	31.5	87.3	59.6	14.1	24.3
125	18500602	MT 1542/MT 1528	189	32.2	58.5	61.7	14.5	15.3
126	18500611	MT 1542/MT 1528	189	34.6	72.2	61.3	15.0	23.7
127	18500613	MT 1542/MT 1528	190	33.7	68.7	59.1	15.5	22.3
128	18500618	CHOTEAU/NICK//MT0744/MT0614(15F6-209)/MT 152	190	38.9	93.1	59.0	14.8	18.3
129	18500623	CHOTEAU/NICK//MT0744/MT0614(15F6-209)/MT 152	191	43.2	82.6	59.8	14.3	11.0
130	18500626	CHOTEAU/NICK//MT0744/MT0614(15F6-209)/MT 152	191	35.8	71.8	61.1	15.1	21.0
131	18500637	CHOTEAU/NICK//MT0744/MT0614(15F6-209)/MT 152	189	33.8	68.4	54.5	15.1	18.7
132	18500641	CHOTEAU/NICK//MT0744/MT0614(15F6-209)/MT 152	189	32.3	84.2	55.7	15.2	18.7
133	18500643	CHOTEAU/NICK//MT0744/MT0614(15F6-209)/MT 152	194	37.7	86.0	55.4	16.0	16.3
134	18500647	MT 1542/MT 1427	191	36.7	89.2	57.4	14.0	24.0
135	18500648	MT 1542/MT 1427	190	35.4	116.3	56.8	14.8	15.0

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ENTRY	ID	PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	STEM SOLID NESS (5-25)
136	18500650	MT 1542/MT 1427	189	33.2	95.4	55.1	14.3	19.7
137	18500651	MT 1542/MT 1427	189	33.2	105.9	55.4	14.7	24.0
138	18500657	MT 1542/MT 1427	190	37.0	126.2	57.1	14.2	20.0
139	18500659	MT 1542/MT 1427	189	37.7	98.5	56.7	13.8	18.0
140	18500661	MT 1542/MT 1427	190	30.1	119.7	57.9	14.3	14.0
141	18500662	MT 1542/MT 1427	187	31.5	79.9	53.8	15.2	19.7
142	18500667	MT 1542/MT 1427	188	34.8	109.4	57.4	14.4	11.3
143	18500671	MT 1316/12F1 112/MT1214	191	36.5	85.2	56.5	15.0	10.3
144	18500674	MT 1316/12F1 112/MT1214	186	32.9	87.1	59.6	15.7	10.7
145	18500687	MT 1572/HI-LINE/CYMMIT (BIG LEAF)	191	33.5	72.5	58.2	14.0	9.7
146	18500692	MT 1572/HI-LINE/CYMMIT (BIG LEAF)	191	31.0	100.6	54.2	14.0	10.7
147	18500693	MT 1572/HI-LINE/CYMMIT (BIG LEAF)	192	34.3	86.6	60.0	14.2	8.7
148	18500707	MT 1524/VIDA	192	42.9	77.5	60.9	14.6	23.0
149	18500708	MT 1524/VIDA	191	37.5	80.1	60.8	14.2	18.3
150	18500710	MT 1524/VIDA	190	34.1	90.4	60.1	14.9	13.0
151	18500713	MT 1316/MT 1338	190	35.1	66.2	60.3	15.4	14.7
152	18500714	MT 1316/MT 1338	192	33.2	110.9	59.6	14.5	14.3
153	18500718	MT 1316/MT 1338	188	33.2	109.4	61.9	15.0	14.7
154	18500720	MT 1316/MT 1338	188	39.1	91.0	60.5	14.8	16.0
155	18500726	MT 1316/MT 1338	192	34.1	106.0	59.7	13.8	13.7
156	18500728	MT1133//CHOTEAU/YELLOWSTONE (44) (15F6-104)	191	32.1	109.5	54.4	14.6	11.0
157	18500735	MT1133//CHOTEAU/YELLOWSTONE (44) (15F6-104)	191	44.4	60.7	59.6	13.4	17.3
158	18500745	MT 1572/12F1 112/MT1214	190	35.0	98.6	56.5	15.6	9.3
159	18500754	MT1133//CHOTEAU/YELLOWSTONE (44) (15F6-104)	193	36.7	76.2	58.1	14.1	22.0
160	18500758	MT1133//CHOTEAU/YELLOWSTONE (44) (15F6-104)	191	34.3	87.9	60.9	15.2	22.7
161	18500761	MT1133//CHOTEAU/YELLOWSTONE (44) (15F6-104)	188	34.3	75.9	58.4	14.9	25.0
162	18500771	MT1133//CHOTEAU/YELLOWSTONE (44) (15F6-104)	191	36.0	81.7	61.0	14.4	20.0
163	18500776	MT1133//CHOTEAU/YELLOWSTONE (44) (15F6-104)	190	32.0	88.2	57.2	14.4	17.7
164	18500786	MT 1316/HI-LINE/CYMMIT (BIG LEAF)	189	36.8	102.0	55.4	14.5	8.7
165	18500789	MT 1316/HI-LINE/CYMMIT (BIG LEAF)	188	34.6	103.2	55.5	14.6	9.3
166	18500794	MT 1316/HI-LINE/CYMMIT (BIG LEAF)	189	25.3	92.4	51.5	14.6	7.0
167	18500801	MT1133//CHOTEAU/YELLOWSTONE (44)(15F6-104)	192	33.6	115.5	55.8	14.7	15.7
168	18500804	MT1133//CHOTEAU/YELLOWSTONE (44)(15F6-104)	190	33.1	87.3	54.1	15.6	14.7
169	18500818	MT1133//CHOTEAU/YELLOWSTONE (44)(15F6-104)	190	31.7	109.0	51.6	14.6	18.7
170	18500830	MT 1453/EGAN	189	35.3	69.2	55.9	15.0	13.0
171	18500834	MT 1316/EGAN	191	37.0	103.5	60.4	14.6	18.7
172	18500838	MT 1316/EGAN	191	37.4	71.6	55.5	16.2	9.0
173	18500840	MT 1316/EGAN	191	31.2	67.1	59.7	15.2	8.3
174	18500844	MT 1316/EGAN	189	34.1	43.6	58.4	16.6	10.0
175	18500845	MT 1316/EGAN	192	42.9	91.4	62.7	14.9	7.7
176	18500867	CHOTEAU/NICK//MT0744/MT0614(15F6-209)/EGAN	192	38.4	93.7	55.9	15.5	12.3
177	18500868	CHOTEAU/NICK//MT0744/MT0614(15F6-209)/EGAN	192	34.1	87.7	54.6	16.2	11.3
178	18500874	CHOTEAU/NICK//MT0744/MT0614(15F6-209)/EGAN	193	36.6	86.3	58.3	15.1	21.7
179	18500883	MT 1542/12SR93/09 3-5	190	35.3	75.5	55.9	16.1	12.3
180	18500888	MT 1542/12SR93/09 3-5	188	41.7	80.1	58.1	15.8	9.3

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ENTRY	ID	PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	STEM SOLID NESS (5-25)
181	18500900	MT 1542/12SR93/09 3-5	189	41.2	79.6	60.6	14.4	20.3
182	18500904	MT 1316/MT1133//MT0744/MT0614	191	33.6	62.5	58.4	16.0	8.7
183	18500914	MT 1316/MT1133//MT0744/MT0614	191	33.6	101.8	60.2	15.2	12.3
184	18500918	MT 1316/MT1133//MT0744/MT0614	190	32.0	74.9	60.6	16.0	9.7
185	18500922	MT 1316/MT1133//MT0744/MT0614	182	37.7	68.8	58.6	15.8	10.7
186	18500926	MT 1542/MT 1349	192	33.6	89.5	56.0	15.5	15.0
187	18500928	MT 1542/MT 1349	190	33.4	90.4	56.3	15.1	18.7
188	18500930	MT 1542/MT 1349	190	33.3	91.3	56.3	13.8	12.3
189	18500934	MT 1542/MT 1349	188	34.6	90.1	55.2	15.1	13.3
190	18500936	MT 1542/MT 1349	191	34.9	98.8	57.3	15.0	18.7
191	18500937	MT 1542/MT 1349	189	35.1	90.0	54.5	14.4	24.7
192	18500943	MT 1542/MT 1349	190	35.1	92.1	58.2	14.9	18.0
193	18500944	MT 1542/MT 1349	189	34.3	81.6	57.8	14.9	19.0
194	18500953	MT 1542/UC1741	191	31.0	111.4	52.5	14.2	13.3
195	18500965	MT 1542/UC1741	189	34.6	103.4	60.1	14.7	13.7
196	18500973	MT 1542/UC1741	191	30.3	108.7	54.6	14.2	10.3
197	18500983	MT 1316/MT 1556	194	37.5	77.1	61.3	14.1	10.3
198	18500990	MT 1316/MT 1556	192	43.2	61.5	57.8	16.5	9.3
199	18500997	MT 1316/MT 1556	187	33.1	78.3	58.4	15.3	12.7
200	18501000	MT 1316/MT 1427	185	29.8	47.9	59.2	15.7	15.3
201	18501004	MT 1316/MT 1427	189	34.6	58.5	58.4	15.6	11.7
202	18501008	MT 1316/MT 1427	187	30.5	88.6	57.7	15.7	17.3
203	18501013	MT 1316/MT 1427	187	28.1	79.3	61.0	15.4	17.0
204	18501016	MT 1316/MT 1427	187	35.8	89.7	58.1	16.3	12.0
205	18501018	MT 1316/MT 1427	187	33.9	67.4	55.2	15.5	11.3
206	18501030	MT 1316/YellostoneX Hiline	193	34.1	121.7	59.5	13.8	8.3
207	18501035	MT 1316/YellostoneX Hiline	190	29.6	101.4	57.8	15.4	9.7
208	18501036	MT 1316/YellostoneX Hiline	192	33.5	97.9	58.8	14.5	9.7
209	18501037	MT 1316/YellostoneX Hiline	191	31.7	70.3	56.8	15.9	10.0
210	18501065	MT 1524/12F1 112/MT1214	192	35.3	84.8	57.1	15.5	21.3
211	18501069	MT 1524/12F1 112/MT1214	191	38.4	74.1	57.0	15.5	25.0
212	18501074	MT 1524/12F1 112/MT1214	185	29.3	71.6	56.8	16.7	21.3
213	18501077	MT 1524/12F1 112/MT1214	192	35.1	97.2	55.9	16.3	22.0
214	18501102	MT 1572/CHOTEAU/NICK//MT0744/MT0614(15F6-20)	192	33.6	99.0	56.5	14.5	12.7
215	18501110	MT 1542/MT 1451	192	36.5	86.6	58.1	14.2	16.0
216	18501112	MT 1542/MT 1451	189	39.6	85.9	55.4	15.1	22.7
217	18501115	MT 1542/MT 1451	190	40.1	129.9	57.8	14.9	21.3
218	18501117	MT 1542/MT 1451	193	38.0	92.4	60.6	14.3	16.0
219	18501137	MT 1542/MT 1451	190	34.7	103.3	60.3	14.3	21.3
220	18501140	MT 1542/MT 1451	192	37.0	108.0	57.7	14.9	23.0
221	18501141	MT 1542/MT 1451	189	34.6	86.7	57.9	14.7	20.7
222	18501148	MT 1316/PI 525245	193	34.8	110.1	57.0	14.2	14.0
223	18501152	MT 1316/PI 525245	191	31.9	102.0	54.6	14.5	12.3
224	18501164	MT 1572/VIDA	192	31.2	92.9	58.9	14.8	21.3
225	18501188	MT 1316/MT 1173	192	36.7	92.0	54.0	14.8	8.0

2019 SPRING WHEAT F6 TRIAL, BOZEMAN DRYLAND

ENTRY	ID	PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	STEM SOLID NESS (5-25)
226	18501201	MT 1572/MT 1451	190	31.7	82.5	60.3	14.9	20.0
227	18501206	MT 1572/MT 1451	190	36.0	75.7	55.2	14.4	23.3
228	18501222	MT 1572/YellowstoneXMcneal	191	35.5	80.5	61.5	15.9	11.7
229	18501231	MT 1524/YellostoneX Hiline	189	30.8	73.7	60.8	16.2	18.7
230	18501236	MT 1524/YellostoneX Hiline	193	37.7	94.5	56.2	13.5	20.0
231	18501242	MT 1524/YellostoneX Hiline	192	32.9	90.9	59.0	13.3	20.3
232	18501245	MT 1524/YellostoneX Hiline	192	38.6	68.2	60.2	12.9	12.3
233	18501260	MT 1572/(Bar Nir X Zahir)Xm (14)	190	34.3	118.3	59.8	13.9	10.3
234	18501277	MT 1572/MT 1401	191	36.3	105.1	57.9	14.7	18.0
235	18501280	MT 1572/MT 1401	189	30.7	116.5	56.2	15.3	9.3
236	18501295	MT 1316/MT 1415	191	35.5	97.3	57.5	15.1	15.3
237	18501297	MT 1316/MT 1415	192	34.1	97.3	61.2	14.5	7.3
238	18501299	MT 1316/MT 1415	189	29.3	113.9	57.7	15.1	11.7
239	18501302	MT 1316/MT 1415	190	34.8	99.3	62.1	14.8	11.3
240	18501304	MT 1316/MT 1415	188	33.0	88.3	55.3	15.3	13.0
241	18501312	MT 1542/MT 1415	191	33.9	96.3	57.8	14.7	21.0
242	18501313	MT 1542/MT 1415	189	37.5	88.8	58.5	14.2	22.3
243	18501315	MT 1542/MT 1415	190	34.8	77.7	59.0	15.5	17.3
244	18501317	MT 1542/MT 1415	188	35.1	81.1	56.6	15.1	22.3
245	18501321	MT 1542/MT 1415	191	37.4	104.0	59.1	14.3	20.7
246	18501326	MT 1542/MT 1415	192	34.3	98.2	62.1	14.7	22.0
247	18501327	MT 1542/MT 1415	192	36.5	90.1	60.7	15.5	12.3
248	18501335	MT 1524/MT 1427	187	33.4	109.9	60.3	14.7	21.3
249	18501339	MT 1524/MT 1427	189	34.7	109.7	60.1	14.7	24.3
250	18501342	MT 1524/MT 1427	187	33.4	83.9	57.4	15.3	23.3
251	18501344	MT 1524/MT 1427	188	37.2	70.4	62.1	14.9	24.3
252	18501348	MT 1316/MT 1528	189	30.3	59.9	61.7	16.0	24.3
253	18501349	MT 1316/MT 1528	191	41.5	108.1	60.1	15.0	21.0
254	18501358	MT 1316/MT 1528	190	32.2	89.0	65.0	14.3	18.0
255	18501359	MT 1316/MT 1528	190	34.5	95.6	59.9	15.7	11.0
256	18501360	MT 1316/MT 1528	189	32.0	86.0	62.4	15.2	16.3
257	18501370	MT 1542/BW499	190	32.7	94.8	56.8	14.7	12.3
258	18501386	MT 1542/12F1 112/MT1214	191	31.0	106.0	54.0	15.4	15.7
259	18501395	MT 1542/12F1 112/MT1214	188	32.0	87.3	53.5	15.0	19.0
260	18501397	MT 1542/12F1 112/MT1214	188	32.9	91.5	57.4	14.2	17.0
261	18501415	MT 1515/MT 1349	192	36.3	69.6	60.8	14.2	16.3
262	18501419	MT 1515/MT 1349	191	31.0	70.4	57.4	15.0	25.0
263	18501422	MT 1515/MT 1349	191	35.5	77.7	58.6	15.0	17.3
264	18501424	MT 1515/MT 1349	189	28.9	66.3	56.8	14.6	14.7
265	18501426	MT 1515/MT 1349	192	30.0	90.5	55.4	14.0	20.7
266	18501428	MT 1515/MT 1349	190	29.3	83.7	57.6	14.2	16.0
267	18501430	MT 1515/MT 1349	189	30.8	96.0	56.8	15.1	16.3
268	18501433	MT 1515/MT 1349	191	30.1	87.3	59.5	15.3	18.3
269	18501438	MT 1316/MT 1401	190	32.7	99.1	57.0	14.9	10.0
270	18501441	MT 1316/MT 1401	192	33.6	101.7	54.9	15.2	19.3

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ENTRY	ID	PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	STEM SOLID NESS (5-25)
271	18501444	MT 1316/MT 1401	189	32.3	98.9	58.7	15.5	7.7
272	18501448	MT 1316/MT 1401	186	32.2	75.5	59.5	15.7	13.0
273	18501451	MT 1316/MT 1401	189	36.1	87.2	60.1	15.8	10.0
274	18501457	MT 1572/MT 1415	189	35.4	50.5	56.5	15.4	17.7
275	18501461	MT 1572/MT 1415	191	32.7	43.8	58.6	15.6	19.3
276	18501465	MT 1572/MT 1415	192	33.9	63.1	61.2	16.3	18.0
277	18501468	MT 1572/MT 1415	191	33.0	86.8	58.5	15.6	17.7
278	18501497	MT 1542/MT 1401	188	37.5	90.2	58.5	15.5	17.0
279	18501500	MT 1542/MT 1401	191	33.4	75.3	57.5	15.7	19.3
280	18501510	MT 1542/MT 1401	190	36.5	76.4	55.2	15.3	19.3
281	18501511	MT 1542/MT 1401	191	35.8	93.1	59.7	14.8	9.0
282	18501517	MT 1572/MT1133//MT0744/MT0614	191	35.5	76.4	59.9	15.1	18.0
283	18501520	MT 1572/MT1133//MT0744/MT0614	189	32.4	86.3	56.3	14.9	13.7
284	18501523	MT 1572/MT1133//MT0744/MT0614	192	36.5	85.0	56.1	14.9	16.7
285	18501529	MT 1542/YellostoneX Hiline	193	37.0	116.3	57.9	14.3	20.3
286	18501540	CHOTEAU/NICK//MT0744/MT0614(15F6-209)/MT 1401	191	37.4	111.8	54.0	14.9	12.7
287	18501546	CHOTEAU/NICK//MT0744/MT0614(15F6-209)/MT 1401	192	38.7	90.0	55.4	15.3	10.7
288	18501547	CHOTEAU/NICK//MT0744/MT0614(15F6-209)/MT 1401	191	40.8	71.5	57.9	14.4	18.0
289	18501549	CHOTEAU/NICK//MT0744/MT0614(15F6-209)/MT 1401	190	38.9	102.1	59.3	14.1	18.7
290	18501567	MT 1542/MT1133//MT0744/MT0614	193	39.6	73.0	51.8	16.7	12.3
291	18501573	MT 1542/MT1133//MT0744/MT0614	191	39.4	88.1	57.5	15.3	12.7
292	18501578	MT 1542/MT1133//MT0744/MT0614	188	34.1	68.0	56.4	15.6	15.7
293	18501586	MT 1316/UC1741	186	28.1	79.7	58.8	15.0	10.0
294	18501600	MT 1316/UC1741	189	31.4	93.8	58.6	14.3	10.3
295	18501604	MT 1316/UC1741	191	28.3	61.8	61.9	15.1	7.7
296	18501610	MT 1316/UC1741	190	35.8	93.2	61.6	15.3	8.3
297	18501615	MT 1316/UC1741	190	38.2	90.4	58.4	14.7	8.7
298	18501625	MT 1524/MT 1451	190	41.2	99.2	59.6	14.9	17.7
299	18501626	MT 1524/MT 1451	190	37.9	65.3	57.6	15.3	19.7
300	18501629	MT 1524/MT 1451	190	35.5	74.3	58.4	15.6	21.3
301	18501630	MT 1524/MT 1451	187	30.2	69.4	59.0	15.7	24.0
302	18501633	MT 1524/MT 1451	189	36.3	107.1	58.3	15.2	18.0
303	18501636	MT 1524/MT 1451	192	35.0	77.7	58.2	14.4	21.7
304	18501638	MT 1524/MT 1451	189	29.8	54.4	56.4	15.2	24.3
305	18501641	MT 1524/MT 1451	192	36.1	89.7	60.9	14.8	21.3
306	18501643	MT 1524/MT 1451	190	34.9	73.2	60.4	15.0	19.0
307	18501644	MT 1524/MT 1451	191	34.6	117.9	59.4	14.6	22.3
308	18501647	MT 1524/MT 1451	187	31.2	71.4	59.5	15.4	23.3
309	18501673	MT 1542/VIDA	190	35.1	65.7	57.1	15.3	17.0
310	18501683	MT 1542/VIDA	193	34.3	81.4	58.3	14.3	17.0
311	18501723	MT 1524/HI-LINE/CYMMIT (BIG LEAF)	189	37.0	75.3	59.5	15.5	18.3
312	18501724	MT 1524/HI-LINE/CYMMIT (BIG LEAF)	192	37.0	93.8	60.9	12.6	25.0
313	18501726	MT 1524/HI-LINE/CYMMIT (BIG LEAF)	188	34.1	60.2	58.9	15.1	22.3
314	18501727	MT 1524/HI-LINE/CYMMIT (BIG LEAF)	191	37.5	65.7	56.1	14.8	22.7
315	18501732	MT 1316/12SR93/09 3-5	190	41.6	96.3	61.2	14.9	12.3

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ENTRY	ID	PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	STEM SOLID NESS (5-25)
316	18501740	MT 1316/12SR93/09 3-5	188	41.5	79.7	58.8	15.7	9.7
317	18501742	MT 1316/12SR93/09 3-5	190	40.3	86.4	57.2	16.3	11.0
318	18501754	MT 1572/MT1133//CHOTEAU/YELLOWSTONE (44) (1	190	36.0	132.4	58.1	14.4	16.3
319	18501760	MT 1572/MT1133//CHOTEAU/YELLOWSTONE (44) (1	192	29.6	66.4	55.1	14.6	17.7
320	18501764	MT 1572/MT1133//CHOTEAU/YELLOWSTONE (44) (1	193	30.7	57.9	52.7	14.3	14.0
321	18501769	MT 1542/HI-LINE/CYMMIT (BIG LEAF)	190	32.2	66.1	59.7	15.0	11.7
322	18501775	MT 1503/EGAN	193	37.2	88.1	55.4	16.1	11.3
323	18501778	MT 1503/EGAN	191	41.0	90.2	57.4	15.6	18.7
324	18501787	MTHW0149/McNeal(15PSP2-25)/LP(113)-WV/1074-1	191	37.7	92.9	61.7	13.2	12.0
325	18501794	MTHW0149/McNeal(15PSP2-25)/LP(113)-WV/1074-1	189	34.9	99.2	55.5	14.3	10.7
326	18501800	MT 1007/C-306	191	37.5	89.1	55.2	13.1	21.3
327	18500322	MT1317/UC1110/ABG282-290	184	42.3	65.1	54.0	16.5	10.7
328	18500324	MT1317/UC1110/ABG282-290	191	41.0	73.6	61.3	15.4	8.0
329	18500333	MT1317/UC1110/ABG282-290	193	33.0	91.8	52.4	14.3	9.3
330	18500335	MT1317/UC1110/ABG282-290	193	29.6	73.3	55.7	14.9	10.3
331	18500339	MT1317/UC1110/ABG282-290	185	30.3	49.9	60.1	15.8	10.0
332	18500342	MT1317/UC1110/ABG282-290	191	35.8	92.3	62.1	15.0	8.7
333	18500345	MT1317/UC1110/ABG282-290	195	34.6	49.0	63.0	14.9	8.7
334	18500347	MT1317/UC1110/ABG282-290	191	32.9	68.3	57.6	15.2	9.7
335	18500348	MT1317/UC1110/ABG282-290	188	33.6	109.4	61.1	15.0	18.3
336	18500356	MT1317/UC1110/ABG282-290	187	36.0	76.8	58.2	15.3	9.3
337	18500360	MT1317/UC1110/ABG282-290	190	30.6	100.5	53.5	15.4	6.0
338	18500361	MT1317/UC1110/ABG282-290	191	40.4	96.9	60.0	14.2	10.3
339	18500364	MT1317/UC1110/ABG282-290	189	37.9	97.8	61.3	15.6	11.7
340	18500367	MT1317/UC1110/ABG282-290	189	32.1	125.4	60.8	14.4	10.7
341	18500370	MT1317/UC1110/ABG282-290	191	37.0	103.1	58.6	14.4	7.0
342	18500383	MT1317/UC1110/ABG282-290	190	34.1	83.0	56.1	14.7	18.0
343	18500391	MT1317/UC1110/ABG282-290	185	29.7	99.5	56.3	16.3	14.3
344	18500432	MT1316/UC1110/ABG282-290	189	32.8	90.7	58.8	15.7	9.7
345	18500437	MT1316/UC1110/ABG282-290	190	32.4	81.9	56.7	13.8	9.0
346	18500438	MT1316/UC1110/ABG282-290	191	34.1	97.7	57.4	14.4	12.0
347	18500441	MT1316/UC1110/ABG282-290	190	28.3	90.3	52.2	14.3	8.3
348	18500445	MT1316/UC1110/ABG282-290	191	34.1	95.5	60.0	14.4	9.0
349	18500450	MT1316/UC1110/ABG282-290	192	39.5	95.9	61.3	14.7	7.7
350	18500452	MT1316/UC1110/ABG282-290	192	32.7	60.4	55.1	16.1	8.3
351	18500456	MT1316/UC1110/ABG282-290	196	39.1	98.0	58.2	15.4	9.0
352	18500458	MT1316/UC1110/ABG282-290	194	36.7	90.7	60.9	13.6	8.0
353	18500468	MT1316/UC1110/ABG282-290	191	30.5	70.3	62.6	14.0	9.7
354	18500469	MT1316/UC1110/ABG282-290	193	48.0	121.0	58.5	13.3	9.0
355	18500471	MT1316/UC1110/ABG282-290	189	31.3	62.1	56.2	15.6	8.7
356	18500473	MT1316/UC1110/ABG282-290	187	42.2	41.8	55.6	15.6	9.3
357	18500475	MT1316/UC1110/ABG282-290	192	36.0	128.3	55.5	14.6	9.0
358	18500477	MT1316/UC1110/ABG282-290	196	38.8	111.7	61.1	14.7	7.3
359	18500478	MT1316/UC1110/ABG282-290	192	30.3	101.6	58.8	14.5	9.3
360	18500484	MT1316/UC1110/ABG282-290	192	39.5	90.5	60.2	15.5	6.0

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ENTRY	ID	PEDIGREE	HEADING DATE (JULIAN)	PLANT HEIGHT (IN.)	YIELD (BU/AC)	TEST WEIGHT (LB/BU)	PROTEIN (%)	STEM SOLID NESS (5-25)
361	18500485	MT1316/UC1110/ABG282-290	187	34.1	80.0	61.7	14.6	8.7
362	18500487	MT1316/UC1110/ABG282-290	194	37.9	90.4	58.6	14.1	8.7
363	18500493	MT1316/UC1110/ABG282-290	193	37.5	84.2	59.0	15.0	8.3
364	18501581	MT 1316/UC1741	193	29.6	105.7	57.8	15.2	9.0
365	18501583	MT 1316/UC1741	191	29.1	95.1	56.6	15.1	8.7
366	18501593	MT 1316/UC1741	197	31.0	99.0	56.1	14.3	8.0
367	18501594	MT 1316/UC1741	194	40.3	125.6	58.4	15.0	8.7
368	18501610	MT 1316/UC1741	191	35.9	80.8	62.5	15.0	10.0
369	-	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F3).1	190	32.9	96.7	59.3	15.5	12.3
370	-	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F3).1	189	37.0	99.1	58.4	15.7	10.0
371	-	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F3).1	192	34.6	90.4	61.4	15.2	15.0
372	-	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F3).1	193	37.7	92.6	58.5	14.3	11.7
373	-	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F3).1	191	35.6	85.0	56.6	14.9	12.3
374	-	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F3).1	193	36.9	91.2	58.1	14.7	13.0
375	-	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F3).1	191	32.0	77.5	60.6	14.9	13.0
376	-	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F3).1	193	34.1	93.1	60.4	13.9	9.3
377	-	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F3).1	192	35.0	116.5	62.9	15.0	10.3
378	-	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F3).1	192	36.3	101.0	61.3	15.1	10.0
379	-	DuClair_H2.2(Patwin515/MN-11394-6)(BC1F3).2	192	37.0	105.6	57.8	14.1	11.3
380	-	DuClair_H2.2(Patwin515/MN-11394-6)(BC1F3).2	189	31.2	66.4	59.3	15.3	13.0
381	-	DuClair_H2.2(Patwin515/MN-11394-6)(BC1F3).2	185	30.0	82.7	59.1	14.8	11.0
382	-	DuClair_H2.2(Patwin515/MN-11394-6)(BC1F3).2	190	35.1	94.1	59.4	14.7	9.0
383	-	DuClair_H2.2(Patwin515/MN-11394-6)(BC1F3).2	187	33.2	91.2	60.1	15.8	12.3
384	-	DuClair_H2.2(Patwin515/MN-11394-6)(BC1F3).2	191	35.1	83.5	60.0	14.5	14.3
385	-	McNeal_4E(Patwin515/MN-11394-6)(BC1F3).1	193	27.2	58.6	60.8	15.3	13.7
386	-	McNeal_4E(Patwin515/MN-11394-6)(BC1F3).1	194	29.0	35.7	59.5	14.2	13.7
387	-	McNeal_4E(Patwin515/MN-11394-6)(BC1F3).1	192	28.4	41.3	62.4	14.8	13.3
388	-	McNeal_4E(Patwin515/MN-11394-6)(BC1F3).1	194	25.0	74.5	60.8	15.0	13.7
389	-	McNeal_4E(Patwin515/MN-11394-6)(BC1F3).1	193	33.1	43.7	60.5	14.8	11.3
390	-	McNeal_4E(Patwin515/MN-11394-6)(BC1F3).1	194	36.3	78.9	61.5	14.2	10.7
391	-	McNeal_4E(Patwin515/MN-11394-6)(BC1F3).1	193	31.0	44.9	63.8	14.9	8.3
392	-	McNeal_4E(Patwin515/MN-11394-6)(BC1F3).1	191	35.3	97.2	63.1	15.5	9.3
393	-	McNeal_4E(Patwin515/MN-11394-6)(BC1F3).1	193	28.7	84.1	61.8	15.4	12.0
394	-	McNeal_4E(Patwin515/MN-11394-6)(BC1F3).1	194	29.2	60.8	61.1	14.0	21.3
395	17MAB3002	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F4).1	189	35.6	80.2	60.7	14.8	9.7
396	17MAB3003	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F4).1	190	36.3	85.8	61.4	15.1	11.3
397	17MAB3010	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F4).1	196	37.4	53.6	59.8	15.6	10.0
398	17MAB3016	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F4).1	190	34.1	109.9	61.8	14.2	12.7
399	17MAB3019	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F4).1	188	32.2	99.0	58.5	15.2	13.0
400	17MAB3020	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F4).1	187	31.2	86.5	60.4	15.2	12.7
401	17MAB3027	DuClair_H2.2(Patwin515/MN-11394-6)(BC1F4).2	191	31.5	87.0	60.5	15.0	14.3
402	17MAB3029	DuClair_H2.2(Patwin515/MN-11394-6)(BC1F4).2	189	34.1	91.4	60.8	14.8	13.7
403	17MAB3032	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F4).1	191	35.6	108.5	58.1	15.0	12.3
404	17MAB3034	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F4).1	191	36.3	101.8	59.6	14.8	11.3
405	17MAB3039	DuClair_H2.1(Patwin515/MN-11394-6)(BC1F4).1	190	33.8	86.9	59.8	14.8	11.7

**2019 SPRING WHEAT F6 TRIAL, BOZEMAN DRYLAND**

<b>ENTRY</b>	<b>ID</b>	<b>PEDIGREE</b>	<b>HEADING DATE (JULIAN)</b>	<b>PLANT HEIGHT (IN.)</b>	<b>YIELD (BU/AC)</b>	<b>TEST WEIGHT (LB/BU)</b>	<b>PROTEIN (%)</b>	<b>STEM SOLID NESS (5-25)</b>
<b>406</b>	<b>17MAB3045</b>	DuClair_H2.2(Patwin515/MN-11394-6 )(BC1F4).2	<b>189</b>	<b>36.3</b>	<b>77.2</b>	<b>58.3</b>	<b>14.9</b>	<b>10.7</b>
<b>407</b>	<b>17MAB3049</b>	DuClair_H2.2(Patwin515/MN-11394-6 )(BC1F4).2	<b>191</b>	<b>35.1</b>	<b>67.0</b>	<b>57.7</b>	<b>14.1</b>	<b>10.3</b>
<b>408</b>	<b>17MAB3055</b>	DuClair_H2.2(Patwin515/MN-11394-6 )(BC1F4).2	<b>190</b>	<b>40.5</b>	<b>93.8</b>	<b>61.0</b>	<b>14.2</b>	<b>10.0</b>
<b>409</b>	<b>17MAB3073</b>	McNeal_4E(Patwin515/MN-11394-6 )(BC1F4).1	<b>192</b>	<b>32.9</b>	<b>65.2</b>	<b>61.3</b>	<b>15.4</b>	<b>8.3</b>
CHECK 1	<b>CI 13596</b>	<b>FORTUNA</b>	<b>192.4</b>	<b>43.9</b>	<b>79.3</b>	<b>58.8</b>	<b>14.4</b>	<b>18.0</b>
CHECK 2	<b>PI 574642</b>	<b>MCNEAL</b>	<b>193.0</b>	<b>36.2</b>	<b>69.5</b>	<b>59.2</b>	<b>15.2</b>	<b>9.0</b>
CHECK 3	<b>ND 695</b>	<b>REEDER</b>	<b>193.1</b>	<b>37.7</b>	<b>84.4</b>	<b>59.8</b>	<b>14.8</b>	<b>7.0</b>
CHECK 4	<b>PI 633974</b>	<b>CHOTEAU</b>	<b>191.2</b>	<b>34.2</b>	<b>84.1</b>	<b>57.8</b>	<b>14.8</b>	<b>22.0</b>
CHECK 5	<b>PI 642366</b>	<b>VIDA</b>	<b>192.7</b>	<b>35.9</b>	<b>93.1</b>	<b>58.2</b>	<b>14.3</b>	<b>10.3</b>
CHECK 6	<b>PI 660981</b>	<b>DUCLAIR</b>	<b>188.9</b>	<b>35.2</b>	<b>93.0</b>	<b>58.3</b>	<b>14.4</b>	<b>21.7</b>

## 2019 USDA Stem Rust Screening Nursery Off Season Kenya Ethiopia Spring Wheat, Matt Rouse, USDA-ARS

Entry name	<u>Njoro, Kenya</u>		Stripe Rust Cumulative Coefficient of Infection			Stem Rust Cumulative Coefficient of Infection	<u>Debre Zeit, Ethiopia</u>		Rouse 25 April 2019 Stem Rust	Stem Rust Cumulative Coefficient of Infection
	KALRO/CIMMYT 15 April 2019 Stripe Rust	KALRO/CIMMYT 23 April 2019 Stripe Rust		KALRO/CIMMYT 6 May 2019 Stem Rust	KALRO/CIMMYT 15 May 2019 Stem Rust		EIAR 10 April 2019 Stem Rust	EIAR 17 April 2019 Stem Rust		
THATCHER	15MS	20MS	28	5RMR	5RMR	2.7	5MS	10MS	60S	72
FORTUNA	5M	10M	9	1R/5MS	1R/5MS	1.86	5MS	5MS	55SMS	59.15
REEDER	5M	5M	6	20MRMS	30MRMS	26.5	5MS	10MS	55MSS	59.85
MCNEAL	20MS	30MS	40	20MRMS	20MRMS	21.2	10MSS	15MSMR	60S	78.75
CHOTEAU	30MS	40MS	56	30MSSMR	50MSSMR	60	10MSMR	15MRMS	60SMS	70.45
VIDA	10MS	10MS	16	30MSSMR	60MSS	74.7	5MS	15MSMR	60S	74.05
DUCLAIR	10M	10M	12	15MRMSS	40MSS	44.55	5MRMS	15MRMS	60S	70.6
EGAN	5MS	10MS	12	30MSS	60MSS	78.3	5MRMS	15MS	60S	74.65
LANNING	10MS	20MS	24	5RMR	5RMR	2.7	10MRMS	15MSMR	60S	75.35
NS PRESSER CLP	20MS	30MS	40	10MR	30MRMS	19.9	5MRMS	15MS	60S	74.65
MT 1451	10MR	20M	16	15MR	40MRMS	27.2	TMS	15MS	60MSS	65.8
MT 1509	10MS	10MS	16	15MSMR	30MRMS	25.95	0	10MSMR	60S	66.7
MT 1601	40MS	50MS	72	30MR	60MRMS	43.8	5MS	15MRMS	60S	71.95
MT 1617	20MS	30MS	40	15MRMS	30MRMS	23.85	5MS	10MS	55S	67
MT 1621	20MS	30MS	40	30MRMS	50MRMS	42.4	10MS	15MRMS	45MSMR	46.1
MT 1625	20MS	30MS	40	40MRMS	60MRMS	53	10MS	20MRMS	50S	68.6
MT 1673	5MR	10MR	6	20MSMR	30MSMR	33.5	5MS	10MS	45S	57
MT 1711	20MS	30MS	40	20MR	30MR	20	0	TMS	15RMR	5.65
MT 1713	40MS	50MS	72	50MSMR	90S	123.5	20MSS	40MRMS	60S	98.6
MT 1714	20MS	30MS	40	50MSMR	80S	113.5	15MS	30MRMS	60S	87.9
MT 1716	20MS	30MS	40	30MRMS	50MRMS	42.4	TMS	10MRMS	55SMS	58.05
MT 1719	20MS	30MS	40	40MSSMR	50MSS	73.5	TMS	10MS	50S	59.6
MT 1729	20MS	30MS	40	20MR	40MRMS	29.2	5MS	15MSS	50MS	57.05
MT 1731	15MS	25MS	32	20MSMR	40MSS	48.2	TMS	5MS	50SMS	52.1
MT 1732	0	5MS	4	40MSSMR	60MSS	82.2	TMS	5MS	45S	50.6
MT 1734	30MS	50MS	64	60MSSMR	70S	115	5MS	15MSMR	60S	74.05
MT 1736	5MS	15MS	16	5RMS	20RMS	10	0	0	15RMRMS	6

Entry name	<u>Njoro, Kenya</u>		Stripe Rust Cumulative Coefficient of Infection			Stem Rust Cumulative Coefficient of Infection	<u>Debre Zeit, Ethiopia</u>			Stem Rust Cumulative Coefficient of Infection
	KALRO/CIMMYT 15 April 2019 Stripe Rust	KALRO/CIMMYT 23 April 2019 Stripe Rust		KALRO/CIMMYT 6 May 2019 Stem Rust	KALRO/CIMMYT 15 May 2019 Stem Rust		EIAR 10 April 2019 Stem Rust	EIAR 17 April 2019 Stem Rust	Rouse 25 April 2019 Stem Rust	
MT 1738	30MS	50MS	64	60MSSMR	90S	135	0	0	20RMR	5.4
MT 1739	20MS	40MS	48	50MRMS	90S	116.5	5MSMR	30MSMR	60S	83.45
MT 1742	20MS	30MS	40	40MRMS	60MRMS	53	TMS	10MSMR	50S	58.3
MT 1743	40MSS	50MSS	78.3	30MRMS	50MRMS	42.4	0	5MS	50SMS	50.5
MT 1745	20MS	30MS	40	40MRMS	50MRMS	47.7	TMS	10MS	25RMR/35MRMS	19.71
MT 1748	30MS	50MS	64	40MRMS	40MRMS	42.4	0	0	30R	6
MT 1749	10MS	20MS	24	30MSMR	40MRMS	41.3	0	5MS	45S	49
MT 1750	30MS	40MS	56	40MRMS	60MRMS	53	10MS	25MRMS	55MS	65.25
MT 1754	5MR	15M	11	60MSMR	60MRMS	72	TMS	10MS	55SMS	60.75
MT 1756	5MR	15M	11	60MSMR	60MRMS	72	TMS	10MS	55SMS	60.75
MT 1764	5MR	5MR	4	20MSMR	20MRMS	24	0	0	5R	1
MT 1766	10MR	20MR	12	20MRMS	40MSS	45.4	TMS	5MS	40MSMR	32.4
MT 1767	20MS	30MS	40	60MSS MR	80S	125	10MS	10MSMR	50MS	54.7
MT 1770	0	5MS	4	30MSSMR	50MSSMR	60	TMS	TMS	20RMR	8.6
MT 1773	0	5MR	2	40MSSMR	60MSS	82.2	TMS	10MS	60S	69.6
MT 1775	0	5MR	2	40MSSMR	70MSS	90.9	TMS	10MS	55SMS	60.75

### Infection Response Key

R = resistant

MR = moderately resistant

M = moderately resistant to moderately susceptible

MS = moderately susceptible

S = susceptible

Any combination of infection responses recorded indicates the presence of multiple infection responses with the most frequent listed first

/ = an indication of mixture of plants, predominant type was given first.

### Cumulative Coefficient of Infection

Coefficient of infections were calculated as the product of severity and linearized infection response

Gao et al. (2016) Genome wide association study of seedling and adult plant leaf rust resistance in elite spring wheat breeding lines. PLOS ONE 11:e0148671.

Cumulative coefficient of infection was calculated as the sum of the coefficient of infections from each rating

**STRIPE RUST INFECTION TYPE (IT<sup>a</sup>) AND SEVERITY (%) ON CULTIVARS AND LINES IN THE SPRING  
 AT LOCATIONS IN PCFS FARM PULLMAN (LOC 04) AND MT. VERNON (LOC 05), WA  
 WHEN RECORDED AT THE INDICATED DATES AND STAGES OF PLANT GROWTH UNDER NATURAL INFECTION IN 2019  
 Xianming Chen, Washington State University**

ENTRY	MT LINE	Variety/ Pedigree	2019 PLOT	LOC 04 <sup>b</sup>		LOC 05 <sup>c</sup>			
				7-23		6-5		6-25	
				Fks 11.2		Fks 6		Fks 11	
				IT	%	IT	%	IT	%
19MSU 1	CI 10003	THATCHER	1	8	30	8	80	8	90
19MSU 2	CI 13596	FORTUNA	2	5	30	5	40	5	60
19MSU 3	ND 695	REEDER	3	5	20	8	80	5	60
19MSU 4	PI 574642	MCNEAL	4	8	30	8	80	8	100
19MSU 5	PI 633974	CHOTEAU	5	5	40	8	80	5	70
19MSU 6	PI 642366	VIDA	6	8	40	8	80	3	40
19MSU 7	PI 660981	DUCLAIR	7	5	30	8	80	8	80
19MSU 8	PI 671855	EGAN	8	8	30	8	90	8	70
19MSU 9	PI 676978	LANNING	9	5	20	8	90	5	50
19MSU 10	PI 679964	NS PRESSER CLP	10	8	30	8	90	8	90
19MSU 11	MT 1621	MT1148/MT1133	11	5	40	8	90	3	30
19MSU 12	MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	12	5	10	8	80	8	70
19MSU 13	MT 1716	MT1274/RB07	13	8	20	8	90	8	100
19MSU 14	MT 1736	12F5 2124/12SR 37	14	5	30	8	90	8	90
19MSU 15	MT 1742	MT1274/12F5 827	15	8	30	8	90	8	100
19MSU 16	MT 1743	MT1274/12F5 827	16	8	50	8	100	8	100
19MSU 17	MT 1748	12F5 2124/IDO868	17	5	15	5	40	5	40
19MSU 18	MT 1750	12SR93/12F5 1215	18	5	20	8	90	5	50
19MSU 19	MT 1767	12SR225/12F5 827	19	8	15	8	80	8	90
19MSU 20	MT 1775	12F5 827/12F5 2124	20	5	10	8	20	2	10
<b>CHECK</b>	<b>AVS</b>	<b>CHECK</b>	<b>21</b>	<b>8</b>	<b>80</b>	<b>8</b>	<b>100</b>	<b>8</b>	<b>100</b>
19MSU 21	MT 1807	VIDA/MO8/3-4	22	5	30	8	80	5	60
19MSU 22	MT 1809	VIDA/M0 09/3-4	23	5	30	8	80	5	70
19MSU 23	MT 1811	MT1142/MTHW1150	24	8	20	8	80	8	90
19MSU 24	MT 1815	MT1206/MT1203	25	5	30	8	90	8	60
19MSU 25	MT 1818	VIDA/ULEN	26	5	20	8	90	5	40
19MSU 26	MT 1819	VIDA/ULEN	27	5	15	8	80	3	30
19MSU 27	MT 1821	VIDA/H0800103L	28	5	20	8	90	3	30
19MSU 28	MT 1826	MT1142/MT1203	29	8	40	8	100	8	100
19MSU 29	MT 1837	VIDA/MT1219	30	5	10	8	60	3	30
19MSU 30	MT 1838	MT1206/MT172	31	8	70	8	80	8	60
19MSU 31	MT 1840	VIDA/LIMAGR1	32	5	25	8	90	8	70
19MSU 32	MT 1846	MT1053/SD4265	33	5	20	8	90	8	80
19MSU 33	MT 1853	MT1053/MT1273	34	8	30	8	90	8	90
19MSU 34	MT 1855	MT1053/MO8/3-4	35	5	30	8	40	3	40
19MSU 35	MT 1856	MT1007/MT1203	36	8	20	8	100	8	90
19MSU 36	MT 1857	MT1142/MT1273	37	5	20	8	100	3	30
19MSU 37	MT 1861	MT1142/MT1264	38	8	40	8	100	8	100

ENTRY	MT LINE	Variety/ Pedigree	2019 PLOT	LOC 04 <sup>b</sup>		LOC 05 <sup>c</sup>			
				7-23		6-5		6-25	
				Fks 11.2		Fks 6		Fks 11	
				IT	%	IT	%	IT	%
19MSU 38	MT 1862	MT1142/MT1264	39	8	30	8	80	5	50
19MSU 39	MT 1863	MT1007/MT1273	40	8	70	8	50	8	80
<b>CHECK</b>	<b>AVS</b>	<b>CHECK</b>	<b>41</b>	<b>8</b>	<b>80</b>	<b>8</b>	<b>100</b>	<b>8</b>	<b>100</b>
19MSU 40	MT 1865	VidaXConan(BC3F2)a2.1.3.6	42	5	40	8	80	5	50
19MSU 41	MT 1866	VidaXConan(BC3F2)a4.6.8.3	43	5	30	8	90	8	80
19MSU 42	MT 1867	DuClairXConan(BC3F2)e3.10.1.3	44	5	30	8	80	5	40
19MSU 43	MT 1868	MT1053/LIMAGR1	45	8	40	8	50	8	60
19MSU 44	MT 1870	VIDA/H0800103L	46	5	20	8	90	3	30
19MSU 45	MT 1872	MT1007/M0 09/3-4	47	5	30	8	90	8	80
19MSU 46	MT 1756	MT1253/12F5 1215	48	5	20	8	50	3	30
19MSU 47	MT 1824	MT1206/MT1273	49	8	30	8	100	8	80
19MSU 48	MT 1871	MT1007/TRVERSE	50	5	15	8	90	3	40
19MSU 49	18500322	MT1317/UC1110/ABG282-290	51	8	40	8	100	8	100
19MSU 50	18500324	MT1317/UC1110/ABG282-290	52	5	20	8	100	5	40
19MSU 51	18500333	MT1317/UC1110/ABG282-290	53	8	30	8	100	8	100
19MSU 52	18500335	MT1317/UC1110/ABG282-290	54	5	10	8	80	8	70
19MSU 53	18500339	MT1317/UC1110/ABG282-290	55	8	40	8	100	8	100
19MSU 54	18500342	MT1317/UC1110/ABG282-290	56	5	30	8	100	8	100
19MSU 55	18500345	MT1317/UC1110/ABG282-290	57	5	30	8	100	8	80
19MSU 56	18500347	MT1317/UC1110/ABG282-290	58	8	50	8	90	8	95
19MSU 57	18500348	MT1317/UC1110/ABG282-290	59	8	40	8	100	8	95
19MSU 58	18500356	MT1317/UC1110/ABG282-290	60	8	40	8	50	8	70
<b>CHECK</b>	<b>AVS</b>	<b>CHECK</b>	<b>61</b>	<b>8</b>	<b>80</b>	<b>8</b>	<b>100</b>	<b>8</b>	<b>100</b>
19MSU 59	18500360	MT1317/UC1110/ABG282-290	62	8	70	8	100	8	100
19MSU 60	18500361	MT1317/UC1110/ABG282-290	63	5	30	8	80	5	50
19MSU 61	18500364	MT1317/UC1110/ABG282-290	64	8	50	8	100	8	100
19MSU 62	18500367	MT1317/UC1110/ABG282-290	65	8	40	8	50	5	40
19MSU 63	18500370	MT1317/UC1110/ABG282-290	66	5	20	8	50	5	40
19MSU 64	18500383	MT1317/UC1110/ABG282-290	67	5	20	8	100	8	90
19MSU 65	18500391	MT1317/UC1110/ABG282-290	68	5	15	8	100	8	70
19MSU 66	18500432	MT1316/UC1110/ABG282-290	69	5	20	8	50	3	30
19MSU 67	18500437	MT1316/UC1110/ABG282-290	70	8	50	8	50	8	100
19MSU 68	18500438	MT1316/UC1110/ABG282-290	71	8	60	8	50	8	60
19MSU 69	18500441	MT1316/UC1110/ABG282-290	72	3	5	8	50	2	20
19MSU 70	18500445	MT1316/UC1110/ABG282-290	73	5	15	8	100	3	30
19MSU 71	18500450	MT1316/UC1110/ABG282-290	74	8	30	8	100	8	100
19MSU 72	18500452	MT1316/UC1110/ABG282-290	75	8	30	8	100	5	60
19MSU 73	18500456	MT1316/UC1110/ABG282-290	76	8	20	8	100	8	90
19MSU 74	18500458	MT1316/UC1110/ABG282-290	77	5	30	8	100	8	70
19MSU 75	18500468	MT1316/UC1110/ABG282-290	78	8	20	8	100	8	100
19MSU 76	18500469	MT1316/UC1110/ABG282-290	79	5	40	8	90	2	10
19MSU 77	18500471	MT1316/UC1110/ABG282-290	80	5	10	8	50	5	50
<b>CHECK</b>	<b>AVS</b>	<b>CHECK</b>	<b>81</b>	<b>8</b>	<b>70</b>	<b>8</b>	<b>100</b>	<b>8</b>	<b>100</b>

ENTRY	MT LINE	Variety/ Pedigree	2019 PLOT	LOC 04 <sup>b</sup>		LOC 05 <sup>c</sup>			
				7-23		6-5		6-25	
				Fks 11.2		Fks 6		Fks 11	
				IT	%	IT	%	IT	%
19MSU 78	18500473	MT1316/UC1110/ABG282-290	82	5	20	8	50	2	20
19MSU 79	18500475	MT1316/UC1110/ABG282-290	83	8	30	8	100	8	90
19MSU 80	18500477	MT1316/UC1110/ABG282-290	84	2	2	8	80	5	40
19MSU 81	18500478	MT1316/UC1110/ABG282-290	85	2	5	8	50	2	20
19MSU 82	18500484	MT1316/UC1110/ABG282-290	86	2	5	8	50	2	5
19MSU 83	18500485	MT1316/UC1110/ABG282-290	87	5	20	8	100	8	100
19MSU 84	18500487	MT1316/UC1110/ABG282-290	88	5	10	8	100	8	70
19MSU 85	18500493	MT1316/UC1110/ABG282-290	89	8	40	8	100	8	90
19MSU 86	18501581	MT 1316/UC1741	90	5	5	8	80	3	30
19MSU 87	18501583	MT 1316/UC1741	91	5	10	8	100	5	40
19MSU 88	18501593	MT 1316/UC1741	92	5	10	8	100	3	30
19MSU 89	18501594	MT 1316/UC1741	93	5	5	8	100	3	30
19MSU 90	18501610	MT 1316/UC1741	94	5	15	8	100	5	40
19MSU 91	18JC-BZN231	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F3).1	95	5	10	8	90	8	60
19MSU 92	18JC-BZN232	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F3).1	96	5	10	8	50	2	5
19MSU 93	18JC-BZN234	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F3).1	97	5	15	8	50	8	100
19MSU 94	18JC-BZN237	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F3).1	98	5	5	5	30	2	5
19MSU 95	18JC-BZN238	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F3).1	99	5	15	8	80	8	70
19MSU 96	18JC-BZN239	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F3).1	100	8	20	8	90	8	100
<b>CHECK</b>	<b>AVS</b>	<b>CHECK</b>	<b>101</b>	<b>8</b>	<b>80</b>	<b>8</b>	<b>100</b>	<b>8</b>	<b>100</b>
19MSU 97	18JC-BZN242	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F3).1	102	8	30	8	100	8	100
19MSU 98	18JC-BZN245	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F3).1	103	5	5	8	50	5	40
19MSU 99	18JC-BZN248	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F3).1	104	5	15	8	100	8	70
19MSU 100	18JC-BZN253	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F3).1	105	5	10	8	50	5	40
19MSU 101	18JC-BZN261	DuClair_H2.2(Patwin515/MN-11394-6 )(BC1F3).2	106	5	10	8	50	3	30
19MSU 102	18JC-BZN264	DuClair_H2.2(Patwin515/MN-11394-6 )(BC1F3).2	107	5	15	8	80	8	70
19MSU 103	18JC-BZN268	DuClair_H2.2(Patwin515/MN-11394-6 )(BC1F3).2	108	5	20	8	100	5	40
19MSU 104	18JC-BZN277	DuClair_H2.2(Patwin515/MN-11394-6 )(BC1F3).2	109	2	10	2	15	8	100
19MSU 105	18JC-BZN282	DuClair_H2.2(Patwin515/MN-11394-6 )(BC1F3).2	110	5	5	8	50	2	10
19MSU 106	18JC-BZN283	DuClair_H2.2(Patwin515/MN-11394-6 )(BC1F3).2	111	8	10	8	100	8	50
19MSU 107	18JC-BZN294	McNeal_4E(Patwin515/MN-11394-6 )(BC1F3).1	112	8	20	8	100	8	100
19MSU 108	18JC-BZN312	McNeal_4E(Patwin515/MN-11394-6 )(BC1F3).1	113	8	15	8	30	8	100
19MSU 109	18JC-BZN328	McNeal_4E(Patwin515/MN-11394-6 )(BC1F3).1	114	2	2	2	5	2	10
19MSU 110	18JC-BZN329	McNeal_4E(Patwin515/MN-11394-6 )(BC1F3).1	115	2	5	0	0	2	10
19MSU 111	18JC-BZN334	McNeal_4E(Patwin515/MN-11394-6 )(BC1F3).1	116	2	10	2	5	2	5
19MSU 112	18JC-BZN335	McNeal_4E(Patwin515/MN-11394-6 )(BC1F3).1	117	5	10	8	80	2	5
19MSU 113	18JC-BZN336	McNeal_4E(Patwin515/MN-11394-6 )(BC1F3).1	118	2	5	2	5	5	40
19MSU 114	18JC-BZN344	McNeal_4E(Patwin515/MN-11394-6 )(BC1F3).1	119	5	10	0	0	2	5
19MSU 115	18JC-BZN361	McNeal_4E(Patwin515/MN-11394-6 )(BC1F3).1	120	8	20	8	80	2	10
<b>CHECK</b>	<b>AVS</b>	<b>CHECK</b>	<b>121</b>	<b>8</b>	<b>70</b>	<b>8</b>	<b>100</b>	<b>8</b>	<b>100</b>
19MSU 116	18JC-BZN362	McNeal_4E(Patwin515/MN-11394-6 )(BC1F3).1	122	8	30	8	100	8	100
19MSU 117	17MAB3002	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F4).1	123	5	5	2	5	8	90
19MSU 118	17MAB3003	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F4).1	124	5	5	2	5	2	5

ENTRY	MT LINE	Variety/ Pedigree	2019 PLOT	LOC 04 <sup>b</sup>		LOC 05 <sup>c</sup>			
				7-23		6-5		6-25	
				Fks 11.2		Fks 6		Fks 11	
				IT	%	IT	%	IT	%
19MSU 119	17MAB3010	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F4).1	125	2	5	2	5	2	5
19MSU 120	17MAB3016	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F4).1	126	3	5	2	5	2	5
19MSU 121	17MAB3019	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F4).1	127	3	5	0	0	2	5
19MSU 122	17MAB3020	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F4).1	128	2	10	0	0	2	5
19MSU 123	17MAB3027	DuClair_H2.2(Patwin515/MN-11394-6 )(BC1F4).2	129	2	5	2	10	2	5
19MSU 124	17MAB3029	DuClair_H2.2(Patwin515/MN-11394-6 )(BC1F4).2	130	5	10	0	0	2	5
19MSU 125	17MAB3032	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F4).1	131	5	5	2	5	2	5
19MSU 126	17MAB3034	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F4).1	132	5	5	2	5	2	5
19MSU 127	17MAB3039	DuClair_H2.1(Patwin515/MN-11394-6 )(BC1F4).1	133	3	2	2	5	2	5
19MSU 128	17MAB3045	DuClair_H2.2(Patwin515/MN-11394-6 )(BC1F4).2	134	3	2	2	5	2	5
19MSU 129	17MAB3049	DuClair_H2.2(Patwin515/MN-11394-6 )(BC1F4).2	135	2	10	2	10	2	5
19MSU 130	17MAB3055	DuClair_H2.2(Patwin515/MN-11394-6 )(BC1F4).2	136	5	10	2	10	2	10
19MSU 131	17MAB3073	McNeal_4E(Patwin515/MN-11394-6 )(BC1F4).1	137	5	20	8	80	2	10
<b>CHECK</b>	<b>AVS</b>	<b>CHECK</b>	<b>138</b>	<b>8</b>	<b>70</b>	<b>8</b>	<b>100</b>	<b>8</b>	<b>100</b>
<b>CHECK</b>	<b>AVS</b>	<b>CHECK</b>	<b>139</b>	<b>8</b>	<b>70</b>	<b>8</b>	<b>100</b>	<b>8</b>	<b>100</b>
<b>END OF NURSERY</b>		<b>MOREX</b>	<b>140</b>	<b>8</b>	<b>30</b>	<b>8</b>	<b>30</b>	<b>8</b>	<b>60</b>

IT 0-3 are considered resistant, 4-6 intermediate, and 7-9 susceptible. Heterogenous reactions of an entry were indicated by two or more ITs separated by "," for most plants with the first IT and few plants with the second IT or connected with "-" for entries containing plants with continuous ITs.

<sup>b</sup> This field was inoculated with spores collected from the same site in 2018 (mixture of PSTv-37, PSTv-52, and PSTV-201) onto the surrounding susceptible spreader rows on June 6, 2019.

<sup>c</sup> Entries with a high IT in the first note, but a low IT in the second note at Mt. Vernon (LOC 05) may indicate that they have high-temperature, adult-plan (HTAP) resistance.

2018 OVERALL SUMMARY FOR MILLING AND BAKING TEST FOR ADVANCED SPRING WHEAT NURSERY, (BOZEMAN, and HAVRE)

LINE	VARIETY / PEDIGREE	Class	Wheat Protein, % (12%mb.)	Single Kernel Hardness	Flour Yield, %	Flour Protein, % (14%mb.)	Flour Ash, %	Wheat Ash, %	Mixing Tolerance	Mixing Time, min	Mixing Water Absorption, %	Bake Mixing Time, min	Loaf Volume (cc)	Crumb Grain Score	Bake Water Absorption, %
AGRIPR 151	SY Valda	HRS	15.2	67	70.8	13.7	0.41	1.36	3.0	3.6	68.8	8.3	1080	7.0	78.5
AGRIPR 161	SY Rockford	HRS	14.7	66	71.4	13.4	0.41	1.50	3.5	3.6	70.0	6.6	1128	5.5	80.0
AGRIPR 141	SY INGMAR	HRS	15.5	71	73.2	14.4	0.42	1.53	4.5	5.2	73.3	15.2	1220	6.0	83.2
BZ 92413R	WB GUNNISON	HRS	14.6	66	69.2	13.7	0.41	1.61	3.5	6.3	71.8	14.0	1110	6.0	82.2
BZ 996434	CORBIN	HRS	16.0	55	69.1	14.4	0.41	1.66	3.0	5.4	71.7	12.5	1128	5.5	81.6
CI 10003	THATCHER	HRS	16.1	66	69.4	13.8	0.44	1.68	3.5	5.3	69.6	12.5	1143	5.5	80.0
CI 13596	FORTUNA	HRS	15.1	62	72.3	13.8	0.41	1.57	1.5	3.2	66.6	5.7	1143	6.0	76.6
ND 695	REEDER	HRS	15.3	65	69.9	13.5	0.37	1.53	3.0	3.1	68.8	6.5	1190	4.0	78.5
PI 574642	MCNEAL	HRS	16.0	73	69.0	14.6	0.42	1.65	4.5	8.2	74.1	15.2	1298	6.0	83.8
PI 633974	CHOTEAU	HRS	15.6	65	70.7	14.4	0.40	1.53	2.0	2.6	69.0	5.1	1175	5.0	78.7
PI 642366	VIDA	HRS	14.6	72	73.1	13.4	0.40	1.46	2.0	3.4	68.9	8.0	1080	5.5	78.8
PI 660981	DUCLAIR	HRS	15.1	60	70.1	13.6	0.41	1.54	3.5	4.3	69.5	7.3	1233	4.5	79.2
PI 671855	EGAN	HRS	17.4	60	68.9	16.0	0.41	1.74	5.0	7.9	75.7	18.2	1348	5.5	85.4
PI 676978	LANNING	HRS	15.7	64	70.4	14.5	0.39	1.64	3.5	4.3	71.1	8.6	1260	5.5	81.0
PI 679964	NS PRESSER CLP	HRS	15.0	61	72.1	13.7	0.37	1.55	2.0	4.2	68.7	10.3	1040	5.0	77.9
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	HRS	15.6	65	69.0	14.2	0.41	1.57	1.5	2.3	67.3	2.6	1068	5.5	76.0
WSCIA	ALUM	HRS	15.3	59	70.9	14.0	0.40	1.53	3.5	5.0	68.8	9.0	1248	5.5	78.5
MT 1451	MT0827/09SR27	HRS	14.8	77	69.9	13.4	0.43	1.51	4.0	3.5	67.0	5.2	1088	6.5	76.7
MT 1509	MT1002/MT1034	HRS	15.2	61	71.3	13.8	0.37	1.46	3.5	3.0	67.1	5.2	1170	5.0	77.0
MT 1601	DUCLAIR/AC BARRIE	HRS	15.5	62	71.1	14.0	0.40	1.51	3.0	3.0	67.6	6.5	1083	5.5	81.1
MT 1617	CHOTEAU/NICK//MT1103	HRS	15.5	60	71.6	14.4	0.39	1.47	3.0	3.5	71.2	9.1	1108	4.0	79.4
PI 690450	DAGMAR	HRS	15.6	64	70.2	14.0	0.42	1.54	4.0	3.8	71.4	7.3	1185	5.5	81.1
MT 1625	MT1148/MT1133	HRS	16.2	58	70.6	14.5	0.42	1.60	1.5	2.4	67.4	3.3	1125	6.0	77.1
MT 1653	MT1167/MT1172	HRS	15.3	58	70.1	13.8	0.39	1.61	1.5	1.9	64.2	2.8	1030	5.0	73.1
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	HRS	16.0	60	69.5	14.5	0.42	1.57	2.5	3.0	69.4	5.8	1175	6.0	79.1
MT 1711	12F5 2124/12F5 1215	HRS	15.5	58	72.6	13.7	0.38	1.57	1.0	2.8	70.0	6.2	1125	5.5	79.9
MT 1713	MT1274/12F5 1215	HRS	15.2	71	71.0	13.5	0.38	1.47	3.5	4.7	76.9	18.5	1150	5.0	88.8
MT 1714	MT1274/12F5 827	HRS	15.8	69	68.7	14.1	0.41	1.44	1.5	3.5	71.0	7.0	1135	5.5	81.2
MT 1716	MT1274/RB07	HRS	15.2	71	72.1	14.2	0.41	1.36	1.5	4.5	70.1	13.9	1183	6.0	80.0
MT 1719	12F5 827/12F5 2124	HRS	16.2	70	69.6	14.8	0.42	1.55	4.0	4.4	72.8	9.6	1160	7.0	83.2
MT 1729	12SR93/CDC OSLER	HRS	16.4	62	70.7	14.6	0.39	1.58	1.5	2.5	66.7	3.3	1163	4.5	76.1
MT 1731	12F5 827/RB07	HRS	16.1	81	70.1	14.1	0.41	1.57	1.5	2.7	67.1	3.8	1063	5.0	77.0

LINE	VARIETY / PEDIGREE	Class	Wheat Protein, % (12% <i>m.b.</i> )	Single Kernel Hardness	Flour Yield, %	Flour Protein, % (14% <i>m.b.</i> )	Flour Ash, %	Wheat Ash, %	Mixing Tolerance	Mixing Time, min	Mixing Water Absorption, %	Bake Mixing Time, min	Loaf Volume (cc)	Crumb Grain Score	Bake Water Absorption, %
MT 1732	MT1253/12F5 827	HRS	16.0	58	69.8	14.0	0.39	1.68	2.0	2.7	67.7	3.4	1108	5.0	77.6
MT 1734	12SR93/12F5 1215	HRS	16.1	59	70.8	14.3	0.38	1.49	3.5	5.4	69.8	10.3	1188	4.5	79.7
MT 1736	12F5 2124/12SR 37	HRS	15.2	50	71.1	13.7	0.39	1.58	3.5	6.3	69.3	22.3	1080	5.5	80.5
MT 1738	12SR37/MT1214	HRS	15.8	62	70.2	13.8	0.37	1.58	2.0	3.5	67.2	7.5	1113	6.0	76.9
MT 1739	MT1274/12F5 1215	HRS	15.1	65	70.1	13.8	0.41	1.48	3.5	4.4	70.1	9.5	1133	5.5	79.8
MT 1742	MT1274/12F5 827	HRS	15.1	65	70.1	13.1	0.38	1.42	4.0	4.6	70.8	13.2	1208	5.5	81.0
MT 1743	MT1274/12F5 827	HRS	14.9	77	70.2	13.3	0.40	1.44	3.0	3.6	68.4	6.9	1120	6.0	78.1
MT 1745	MT1274/12SR 37	HRS	15.3	69	71.2	13.9	0.40	1.55	2.5	3.8	70.8	8.4	1135	6.0	80.5
MT 1748	12F5 2124/IDO868	HRS	15.9	56	69.2	14.6	0.39	1.70	4.0	7.6	72.1	20.5	1218	6.5	82.8
MT 1749	IDO868/MT1253	HRS	16.3	54	70.9	15.3	0.40	1.59	2.0	3.5	69.0	8.6	1145	4.5	78.7
MT 1750	12SR93/12F5 1215	HRS	15.5	65	71.0	14.2	0.40	1.50	3.0	6.4	69.8	17.8	1100	6.0	80.0
MT 1754	MT1253/12SR 37	HRS	15.2	50	72.3	13.2	0.38	1.68	4.5	4.6	68.4	13.0	1123	6.0	78.1
MT 1756	MT1253/12F5 1215	HRS	15.4	48	70.9	14.3	0.40	1.57	4.0	7.4	71.8	16.0	1185	6.5	82.0
ND 828	ND 828	HRS	16.2	72	72.9	14.7	0.37	1.61	3.5	4.1	71.6	9.6	1215	6.0	81.5
MT 1764	SD4250/12F5 2124	HRS	16.5	72	69.9	15.3	0.44	1.59	3.0	2.8	70.9	5.0	1120	5.5	80.6
MT 1766	MT1274/12SR 225	HRS	15.4	74	68.1	14.0	0.48	1.49	1.5	2.4	68.1	4.0	1060	5.5	77.3
MT 1767	12SR225/12F5 827	HRS	16.0	60	71.0	14.9	0.41	1.56	2.5	3.9	71.1	9.6	1133	5.5	81.0
MT 1770	MT1214/MT 1253	HRS	16.2	71	70.1	14.6	0.42	1.67	2.0	3.0	72.2	4.8	1055	5.5	81.7
MT 1773	MT1253/MT1274	HRS	14.9	63	69.5	13.5	0.41	1.63	1.5	2.0	67.7	2.2	1028	5.0	75.9
MT 1775	12F5 827/12F5 2124	HRS	15.2	58	72.5	14.0	0.40	1.49	2.0	3.5	69.2	8.4	1068	6.0	79.2
SYN 181	10S0059-28	HRS	16.0	75	69.9	14.6	0.44	1.59	3.0	3.9	71.6	8.6	1150	6.0	82.1
SYN 182	09S0306-24 SS	HRS	15.6	71	70.5	14.3	0.40	1.58	4.0	4.3	70.5	9.4	1233	5.5	80.9
SYN 183	10S0176-18 CL	HRS	15.4	81	68.1	13.3	0.44	1.59	3.5	3.3	69.3	5.4	1113	5.0	79.0
WB 171	WB 9590	HRS	15.8	67	70.8	14.3	0.39	1.60	3.5	4.5	72.5	9.9	1050	5.0	83.0
WB 173	WB 9719	HRS	14.6	72	70.8	13.4	0.40	1.45	4.0	5.1	69.9	10.1	1100	4.5	80.6
WB 181	WB 9653	HRS	14.9	76	73.5	13.7	0.42	1.41	1.5	3.9	69.0	7.0	1163	6.0	78.9
LIMAGR 143	LCS PRO	HRS	15.7	72	72.2	13.3	0.38	1.54	3.5	3.7	72.8	8.3	1188	6.5	82.7
LIMAGR 171	LCS REBEL(LNR 13-0594)	HRS	15.4	70	73.4	14.4	0.40	1.47	4.0	4.8	71.9	11.6	1188	5.0	81.9
LIMAGR 181	LCS CANNON	HRS	15.7	73	73.3	14.5	0.39	1.49	3.5	3.6	72.4	8.6	1198	6.5	82.6
WF 161	HRS 3616	HRS	16.1	70	69.4	13.1	0.39	1.64	3.5	4.6	73.9	9.6	1205	6.0	84.1
WF 162	HRS 3504	HRS	14.8	75	73.4	13.1	0.41	1.54	2.5	4.3	69.3	11.1	1155	5.5	79.0
WF 181	HRS 3419	HRS	15.1	71	68.9	13.8	0.42	1.53	2.5	4.5	71.1	10.0	1198	7.0	80.8
	<b>MEAN</b>		<b>15.5</b>	<b>66</b>	<b>71.0</b>	<b>14.0</b>	<b>0.40</b>	<b>1.55</b>	<b>2.9</b>	<b>4.1</b>	<b>70.0</b>	<b>9.1</b>	<b>1145</b>	<b>5.6</b>	<b>80.0</b>

2018 MILLING AND BAKING TEST FOR ADVANCED SPRING WHEAT NURSERY, BOZEMAN (DRY)

LINE	VARIETY / PEDIGREE	Class	Wheat Protein, % (12% <i>m.b.</i> )	Single Kernel Hardness	Flour Yield, %	Flour Protein, % (14% <i>m.b.</i> )	Flour Ash, %	Wheat Ash, %	Mixograph Type	Mixing Tolerance	Mixing Time, min	Mixing Water Absorption, %	Bake Mixing Time, min	Loaf Volume (cc)	Crumb Grain Score	Bake Water Absorption, %	
AGRIPR 151	SY Valda	HRS	14.4	67	70.3	12.7	0.42	1.33	M	3	2.5	65.7	4.7	1100	7	75.4	HasStrength
AGRIPR 161	SY Rockford	HRS	13.9	66	71.5	12.6	0.41	1.36	MH	4	3.3	68.3	5.1	1110	6	78.5	STSIStrong
AGRIPR 141	SY INGMAR	HRS	15.3	71	72.6	14.1	0.40	1.46	MH	4	4.5	70.9	10.7	1270	7	80.6	Strong
BZ 92413R	WB GUNNISON	HRS	13.8	66	67.0	12.1	0.40	1.48	LM	5	7.1	68.6	12.6	1120	6	79.8	Bucky
BZ 996434	CORBIN	HRS	14.9	55	70.1	13.0	0.40	1.45	M	2	4.0	67.0	8.2	1045	5	76.7	STSIStrong
CI 10003	THATCHER	HRS	15.2	66	70.4	13.6	0.43	1.54	M	2	2.4	64.8	3.8	1110	5	74.5	HasStrength
CI 13596	FORTUNA	HRS	14.8	62	72.7	13.4	0.40	1.42	M	1	2.3	64.5	3.7	1110	6	74.7	STHasStrength
ND 695	REEDER	HRS	15.0	65	69.2	13.6	0.39	1.41	M	3	2.7	67.9	5.0	1175	3	77.6	HasStrength
PI 574642	MCNEAL	HRS	16.3	73	69.1	14.4	0.42	1.51	M	4	6.5	72.9	10.7	1290	6	82.6	Strong
PI 633974	CHOTEAU	HRS	15.1	65	70.8	13.7	0.40	1.39	M	2	2.6	68.1	3.9	1145	5	77.8	STStrong
PI 642366	VIDA	HRS	14.0	72	72.7	12.9	0.42	1.38	M	2	2.8	67.2	5.2	1055	6	77.4	SISTHasStrength
PI 660981	DUCLAIR	HRS	14.3	60	70.3	12.8	0.41	1.32	M	3	4.4	69.1	6.2	1210	5	78.8	STSIStrong
PI 671855	EGAN	HRS	17.7	60	69.1	15.7	0.41	1.69	MH	5	5.9	76.0	14.1	1365	5	85.7	LgSTBucky
PI 676978	LANNING	HRS	15.5	64	70.7	14.0	0.40	1.51	M	3	3.5	71.4	7.1	1230	5	81.6	LgSTStrong
PI 679964	NS PRESSER CLP	HRS	14.8	61	71.4	13.4	0.37	1.44	M	2	3.6	66.9	6.1	1035	5	75.6	HasStrength
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	HRS	14.7	65	68.9	13.4	0.42	1.36	M	2	1.8	66.9	2.2	985	6	75.6	STHasStrength
WSCIA	ALUM	HRS	14.7	59	70.3	13.2	0.39	1.36	M	3	4.2	67.0	5.1	1165	6	76.7	Strong
MT 1451	MT0827/09SR27	HRS	13.9	77	69.4	12.3	0.43	1.34	M	4	3.0	66.0	3.7	1055	7	75.7	STSIStrong
MT 1509	MT1002/MT1034	HRS	14.7	61	71.1	13.3	0.38	1.28	M	3	2.3	66.4	3.1	1115	6	76.6	SISTHasStrength
MT 1601	DUCLAIR/AC BARRIE	HRS	14.9	62	71.2	13.4	0.40	1.41	M	3	2.2	66.5	3.6	1055	5	76.7	LgstHasStrength
MT 1617	CHOTEAU/NICK//MT1103	HRS	14.5	60	73.1	13.2	0.39	1.28	M	3	1.8	68.0	3.4	1070	4	75.7	LgSTHasStrength
PI 690450	DAGMAR	HRS	15.4	64	69.1	13.6	0.43	1.48	M	4	3.5	69.9	5.2	1160	5	79.6	LgSTStrong
MT 1625	MT1148/MT1133	HRS	15.5	58	69.6	13.8	0.43	1.45	M	2	2.6	66.9	3.5	1075	6	76.6	LgSTHasStrength
MT 1653	MT1167/MT1172	HRS	15.6	58	68.4	13.9	0.40	1.50	M	1	1.4	63.5	1.5	980	5	71.7	LgSTHasStrength
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	HRS	15.2	60	70.7	13.8	0.43	1.40	M	3	2.8	68.7	5.5	1165	6	78.4	LgSTSIStrong
MT 1711	12F5 2124/12F5 1215	HRS	14.9	58	73.0	12.2	0.36	1.43	M	1	1.8	66.7	3.4	1140	6	76.4	LgSTHasStrength
MT 1713	MT1274/12F5 1215	HRS	14.8	71	70.9	12.3	0.37	1.32	MH	4	4.5	71.2	12.7	1190	6	83.4	LgSTBucky
MT 1714	MT1274/12F5 827	HRS	15.6	69	68.0	13.4	0.40	1.35	m	2	3.6	70.0	6.8	1100	5	80.7	LgSTSI Bucky
MT 1716	MT1274/RB07	HRS	14.9	71	72.4	13.9	0.42	1.16	M	1	3.5	68.9	8.0	1175	6	78.6	LgSTSIStrong
MT 1719	12F5 827/12F5 2124	HRS	15.9	70	69.7	14.2	0.42	1.42	M	3	3.9	72.0	6.1	1075	7	81.7	HasStrength
MT 1729	12SR93/CDC OSLER	HRS	16.2	62	70.9	14.0	0.39	1.38	M	1	1.9	65.0	1.8	1100	4	73.7	HasStrength
MT 1731	12F5 827/RB07	HRS	15.9	81	70.5	12.8	0.40	1.44	M	1	2.2	64.8	2.3	1015	5	74.5	STHasStrength

LINE	VARIETY / PEDIGREE	Class	Wheat Protein, % (12% <i>m.b.</i> )	Single Kernel Hardness	Flour Yield, %	Flour Protein, % (14% <i>m.b.</i> )	Flour Ash, %	Wheat Ash, %	Mixograph Type	Mixing Tolerance	Mixing Time, min	Mixing Water Absorption, %	Bake Mixing Time, min	Loaf Volume (cc)	Crumb Grain Score	Bake Water Absorption, %	
MT 1732	MT1253/12F5 827	HRS	15.8	58	69.8	13.1	0.37	1.59	M	3	2.4	67.0	3.0	1075	6	76.7	STHasStrength
MT 1734	12SR93/12F5 1215	HRS	15.8	59	70.6	13.1	0.37	1.40	MH	3	4.7	68.5	4.9	1120	5	78.2	LgSTSIStrong
MT 1736	12F5 2124/12SR 37	HRS	14.9	50	70.9	13.0	0.37	1.45	M	3	5.5	69.0	17.9	1010	5	80.7	Bucky
MT 1738	12SR37/MT1214	HRS	15.0	62	70.5	12.8	0.37	1.45	M	2	3.0	65.0	4.5	1065	6	74.7	HasStrength
MT 1739	MT1274/12F5 1215	HRS	14.7	65	69.4	13.3	0.41	1.41	M	3	4.5	69.9	8.4	1100	6	79.6	SIStrong
MT 1742	MT1274/12F5 827	HRS	15.0	65	69.8	12.2	0.37	1.32	MH	4	4.2	69.8	10.3	1150	6	79.5	Strong
MT 1743	MT1274/12F5 827	HRS	13.9	77	70.7	11.8	0.40	1.30	M	3	3.6	66.9	5.2	1050	5	76.6	HasStrength
MT 1745	MT1274/12SR 37	HRS	15.1	69	71.0	13.3	0.41	1.49	M	2	3.0	69.8	5.3	1090	5	79.5	Strong
MT 1748	12F5 2124/IDO868	HRS	15.4	56	70.3	14.0	0.39	1.56	MH	4	4.3	69.9	13.1	1175	6	80.6	STBucky
MT 1749	IDO868/MT1253	HRS	15.7	54	71.6	14.3	0.39	1.47	MH	2	2.9	67.7	7.8	1080	5	77.4	STHasStrength
MT 1750	12SR93/12F5 1215	HRS	15.2	65	71.6	14.1	0.43	1.40	M	3	5.6	70.0	16.0	1025	6	79.7	Strong
MT 1754	MT1253/12SR 37	HRS	15.2	50	72.2	12.2	0.35	1.55	M	5	3.1	68.0	7.6	1110	6	77.7	HasStrength
MT 1756	MT1253/12F5 1215	HRS	15.3	48	70.9	14.1	0.41	1.42	MH	4	3.9	69.4	3.6	1145	7	79.6	Strong
ND 828	ND 828	HRS	15.9	72	72.7	13.7	0.37	1.47	MH	2	2.8	68.9	4.4	1155	6	78.6	STSIStrong
MT 1764	SD4250/12F5 2124	HRS	16.1	72	69.3	14.3	0.44	1.49	MH	3	2.3	68.9	3.6	1075	6	78.6	SISTSIStrong
MT 1766	MT1274/12SR 225	HRS	14.9	74	68.8	13.7	0.48	1.43	M	2	2.3	69.1	4.9	1020	6	78.8	STSIStrong
MT 1767	12SR225/12F5 827	HRS	15.3	60	71.4	14.0	0.43	1.38	M	2	3.1	69.6	6.8	1060	5	79.8	LgSTSIStrong
MT 1770	MT1214/MT 1253	HRS	15.4	71	71.2	13.2	0.40	1.52	M	2	2.3	68.5	3.0	1025	5	77.7	STSIStrong
MT 1773	MT1253/MT1274	HRS	14.4	63	70.2	12.8	0.39	1.51	MH	2	2.1	67.0	2.2	1055	5	75.7	LgSTHasStrength
MT 1775	12F5 827/12F5 2124	HRS	15.0	58	72.0	13.6	0.40	1.41	MH	2	3.0	68.6	5.9	1060	5	78.8	LgSTStrong
SYN 181	10S0059-28	HRS	15.6	75	71.3	14.2	0.45	1.43	MH	3	3.6	71.4	7.4	1190	6	82.6	Strong
SYN 182	09S0306-24 SS	HRS	14.7	71	70.6	13.3	0.41	1.40	MH	4	3.5	68.9	6.6	1185	5	79.6	STSI Bucky
SYN 183	10S0176-18 CL	HRS	15.0	81	68.0	12.3	0.43	1.44	MH	3	2.7	67.8	3.7	1070	4	77.5	SISTHasStrength
WB 171	WB 9590	HRS	15.1	67	70.7	13.2	0.38	1.46	M	3	4.5	72.5	8.9	1035	4	83.7	STBucky
WB 173	WB 9719	HRS	14.0	72	71.4	12.5	0.41	1.26	MH	4	4.6	68.0	8.0	1100	4	79.7	STBucky
WB 181	WB 9653	HRS	14.4	76	73.1	13.1	0.44	1.25	M	1	3.0	67.4	4.7	1150	6	77.6	LgSTSIStrong
LIMAGR 143	LCS PRO	HRS	15.2	72	72.5	12.3	0.38	1.39	MH	2	2.9	68.9	4.3	1210	7	78.6	STHasStrength
LIMAGR 171	LCS REBEL(LNR 13-0594)	HRS	14.5	70	73.4	13.3	0.40	1.30	M	4	4.1	69.5	8.1	1200	4	79.7	LgSTSIStrong
LIMAGR 181	LCS CANNON	HRS	15.1	73	73.9	13.7	0.40	1.35	MH	3	2.9	70.0	5.9	1205	6	80.7	STStrong
WF 161	HRS 3616	HRS	15.5	70	70.5	12.2	0.39	1.43	MH	4	3.6	71.7	7.6	1210	6	81.4	STSIStrong
WF 162	HRS 3504	HRS	14.1	75	73.1	11.8	0.39	1.47	M	2	2.6	65.9	5.1	1120	6	75.6	STHasStrength
WF 181	HRS 3419	HRS	13.6	71	70.1	12.3	0.42	1.27	M	2	3.9	68.0	7.2	1125	7	77.7	LgSTSIStrong
MEAN			15.0	66	70.8	13.3	0.40	1.41		3	3.4	68.4	6.3	1116	6	78.3	

2018 MILLING AND BAKING TEST FOR ADVANCED SPRING WHEAT NURSERY, HAVRE (DRY)

LINE	VARIETY / PEDIGREE	Class	Wheat Protein, % (12% <i>m.b.</i> )	Single Kernel Hardness	Flour Yield, %	Flour Protein, % (14% <i>m.b.</i> )	Flour Ash, %	Wheat Ash, %	Mixograph Type	Mixing Tolerance	Mixing Time, min	Mixing Water Absorption, %	Bake Mixing Time, min	Loaf Volume (cc)	Crumb Grain Score	Bake Water Absorption, %	
AGRIPR 151	SY Valda	HRS	16.0	.	71.2	14.6	0.40	1.39	M	3.0	4.6	71.8	11.8	1060	7	81.5	SISTStrong
AGRIPR 161	SY Rockford	HRS	15.5	.	71.2	14.2	0.41	1.64	M	3.0	3.9	71.7	8.0	1145	5	81.4	STStrong
AGRIPR 141	SY INGMAR	HRS	15.6	.	73.7	14.7	0.43	1.59	M	5.0	5.8	75.6	19.6	1170	5	85.8	STVeryStrong
BZ 92413R	WB GUNNISON	HRS	15.4	.	71.3	15.3	0.42	1.73	M	2.0	5.4	74.9	15.4	1100	6	84.6	Strong
BZ 996434	CORBIN	HRS	17.1	.	68.1	15.7	0.41	1.87	M	4.0	6.8	76.3	16.7	1210	6	86.5	LgSTStrong
CI 10003	THATCHER	HRS	16.9	.	68.4	14.0	0.44	1.82	M	5.0	8.1	74.3	21.2	1175	6	85.5	STBucky
CI 13596	FORTUNA	HRS	15.4	.	71.9	14.2	0.42	1.71	M	2.0	4.0	68.7	7.7	1175	6	78.4	LgSTStrong
ND 695	REEDER	HRS	15.6	.	70.5	13.4	0.34	1.64	M	3.0	3.5	69.7	7.9	1205	5	79.4	STHasStrength
PI 574642	MCNEAL	HRS	15.7	.	68.8	14.8	0.41	1.78	M	5.0	9.8	75.3	19.6	1305	6	85.0	LgSTBucky
PI 633974	CHOTEAU	HRS	16.1	.	70.6	15.0	0.40	1.67	M	2.0	2.6	69.8	6.3	1205	5	79.5	STHasStrength
PI 642366	VIDA	HRS	15.1	.	73.5	13.9	0.38	1.53	M	2.0	4.0	70.5	10.7	1105	5	80.2	STHasStrength
PI 660981	DUCLAIR	HRS	15.8	.	69.9	14.3	0.40	1.76	M	4.0	4.1	69.9	8.4	1255	4	79.6	LgSTHasStrength
PI 671855	EGAN	HRS	17.1	.	68.6	16.3	0.40	1.79	M	5.0	9.9	75.4	22.2	1330	6	85.1	LgSTStrong
PI 676978	LANNING	HRS	15.9	.	70.0	14.9	0.38	1.76	M	4.0	5.1	70.7	10.0	1290	6	80.4	Strong
PI 679964	NS PRESSER CLP	HRS	15.2	.	72.8	13.9	0.37	1.66	LM	2.0	4.8	70.5	14.4	1045	5	80.2	SISTHasStrength
WB 9879 CLP	CHOTEAU*3/CHOTEAU/IMI8134	HRS	16.4	.	69.1	15.0	0.39	1.77	M	1.0	2.7	67.7	3.0	1150	5	76.4	SISTHasStrength
WSCIA	ALUM	HRS	15.9	.	71.4	14.8	0.40	1.70	M	4.0	5.7	70.5	12.9	1330	5	80.2	LgSTStrong
MT 1451	MT0827/09SR27	HRS	15.6	.	70.3	14.4	0.43	1.67	M	4.0	3.9	67.9	6.7	1120	6	77.6	STStrong
MT 1509	MT1002/MT1034	HRS	15.6	.	71.4	14.3	0.36	1.63	M	4.0	3.6	67.7	7.2	1225	4	77.4	STHasStrength
MT 1601	DUCLAIR/AC BARRIE	HRS	16.1	.	70.9	14.6	0.39	1.60	M	3.0	3.7	68.7	9.4	1110	6	85.4	STHasStrength
MT 1617	CHOTEAU/NICK//MT1103	HRS	16.4	.	70.1	15.5	0.38	1.66	M	3.0	5.2	74.4	14.8	1145	4	83.1	STHasStrength
PI 690450	DAGMAR	HRS	15.8	.	71.3	14.4	0.41	1.59	MH	4.0	4.0	72.9	9.3	1210	6	82.6	STHasStrength
MT 1625	MT1148/MT1133	HRS	16.8	.	71.5	15.1	0.41	1.74	M	1.0	2.1	67.9	3.0	1175	6	77.6	HasStrength
MT 1653	MT1167/MT1172	HRS	14.9	.	71.7	13.7	0.38	1.71	M	2.0	2.3	64.8	4.0	1080	5	74.5	STHasStrength
MT 1673	Duclair x McNeal/Glupro, +, fam 72-17	HRS	16.7	.	68.3	15.2	0.41	1.73	M	2.0	3.1	70.0	6.0	1185	6	79.7	STHasStrength
MT 1711	12F5 2124/12F5 1215	HRS	16.1	.	72.1	15.2	0.39	1.70	M	1.0	3.8	73.2	8.9	1110	5	83.4	HasStrength
MT 1713	MT1274/12F5 1215	HRS	15.6	.	71.0	14.7	0.38	1.62	M	3.0	4.8	82.5	24.2	1110	4	94.2	STBucky
MT 1714	MT1274/12F5 827	HRS	16.0	.	69.4	14.8	0.42	1.52	M	1.0	3.3	72.0	7.1	1170	6	81.7	HasStrength
MT 1716	MT1274/RB07	HRS	15.5	.	71.8	14.4	0.39	1.56	M	2.0	5.5	71.2	19.8	1190	6	81.4	LgSTHasStrength
MT 1719	12F5 827/12F5 2124	HRS	16.4	.	69.5	15.4	0.42	1.68	M	5.0	4.9	73.5	13.1	1245	7	84.7	STStrong
MT 1729	12SR93/CDC OSLER	HRS	16.5	.	70.4	15.1	0.38	1.77	M	2.0	3.1	68.3	4.7	1225	5	78.5	STHasStrength
MT 1731	12F5 827/RB07	HRS	16.3	.	69.7	15.3	0.42	1.69	M	2.0	3.1	69.3	5.3	1110	5	79.5	SISTHasStrength

LINE	VARIETY / PEDIGREE	Class	Wheat Protein, % (12% m.b.)	Single Kernel Hardness	Flour Yield, %	Flour Protein, % (14% m.b.)	Flour Ash, %	Wheat Ash, %	Mixograph Type	Mixing Tolerance	Mixing Time, min	Mixing Water Absorption, %	Bake Mixing Time, min	Loaf Volume (cc)	Crumb Grain Score	Bake Water Absorption, %	
MT 1732	MT1253/12F5 827	HRS	16.1	.	69.7	14.9	0.41	1.76	LM	1.0	2.9	68.3	3.8	1140	4	78.5	STHasStrength
MT 1734	12SR93/12F5 1215	HRS	16.3	.	70.9	15.4	0.38	1.58	M	4.0	6.0	71.0	15.6	1255	4	81.2	HasStrength
MT 1736	12F5 2124/12SR 37	HRS	15.5	.	71.2	14.3	0.40	1.70	M	4.0	7.1	69.5	26.6	1150	6	80.2	STStrong
MT 1738	12SR37/MT1214	HRS	16.5	.	69.8	14.8	0.36	1.70	M	2.0	4.0	69.4	10.4	1160	6	79.1	HasStrength
MT 1739	MT1274/12F5 1215	HRS	15.5	.	70.7	14.3	0.40	1.54	MH	4.0	4.2	70.3	10.6	1165	5	80.0	STHasStrength
MT 1742	MT1274/12F5 827	HRS	15.2	.	70.3	14.0	0.39	1.52	MH	4.0	4.9	71.7	16.0	1265	5	82.4	Strong
MT 1743	MT1274/12F5 827	HRS	15.9	.	69.7	14.7	0.40	1.57	MH	3.0	3.6	69.9	8.6	1190	7	79.6	STHasStrength
MT 1745	MT1274/12SR 37	HRS	15.5	.	71.4	14.5	0.39	1.61	M	3.0	4.5	71.7	11.4	1180	7	81.4	Strong
MT 1748	12F5 2124/IDO868	HRS	16.3	.	68.1	15.1	0.38	1.84	M	4.0	10.8	74.3	27.9	1260	7	85.0	LgSTBucky
MT 1749	IDO868/MT1253	HRS	16.9	.	70.1	16.2	0.40	1.70	M	2.0	4.1	70.2	9.4	1210	4	79.9	STHasStrength
MT 1750	12SR93/12F5 1215	HRS	15.7	.	70.4	14.3	0.37	1.59	M	3.0	7.1	69.5	19.5	1175	6	80.2	LgSTStrong
MT 1754	MT1253/12SR 37	HRS	15.2	.	72.4	14.1	0.40	1.80	M	4.0	6.1	68.8	18.3	1135	6	78.5	STStrong
MT 1756	MT1253/12F5 1215	HRS	15.5	.	70.9	14.5	0.39	1.71	M	4.0	10.8	74.2	28.4	1225	6	84.4	STStrong
ND 828	ND 828	HRS	16.5	.	73.0	15.7	0.36	1.75	MH	5.0	5.4	74.2	14.8	1275	6	84.4	STSiBucky
MT 1764	SD4250/12F5 2124	HRS	16.9	.	70.5	16.2	0.43	1.68	MH	3.0	3.2	72.8	6.4	1165	5	82.5	STHasStrength
MT 1766	MT1274/12SR 225	HRS	15.9	.	67.3	14.3	0.47	1.54	M	1.0	2.5	67.1	3.0	1100	5	75.8	STHasStrength
MT 1767	12SR225/12F5 827	HRS	16.6	.	70.5	15.8	0.39	1.74	M	3.0	4.6	72.5	12.4	1205	6	82.2	SISTSiStrong
MT 1770	MT1214/MT 1253	HRS	17.0	.	69.0	16.0	0.43	1.82	M	2.0	3.6	75.9	6.6	1085	6	85.6	STSiStrong
MT 1773	MT1253/MT1274	HRS	15.3	.	68.7	14.1	0.43	1.74	LM	1.0	1.9	68.4	2.2	1000	5	76.1	SISTHasStrength
MT 1775	12F5 827/12F5 2124	HRS	15.3	.	73.0	14.3	0.39	1.57	M	2.0	3.9	69.8	10.8	1075	7	79.5	HasStrength
SYN 181	10S0059-28	HRS	16.4	.	68.4	14.9	0.42	1.75	M	3.0	4.2	71.8	9.7	1110	6	81.5	STSiStrong
SYN 182	09S0306-24 SS	HRS	16.5	.	70.4	15.3	0.39	1.76	M	4.0	5.1	72.0	12.2	1280	6	82.2	LgSTStrong
SYN 183	10S0176-18 CL	HRS	15.7	.	68.2	14.2	0.44	1.73	MH	4.0	3.9	70.7	7.0	1155	6	80.4	STHasStrength
WB 171	WB 9590	HRS	16.4	.	70.8	15.3	0.40	1.73	MH	4.0	4.4	72.5	10.8	1065	6	82.2	STSiStrong
WB 173	WB 9719	HRS	15.2	.	70.1	14.2	0.38	1.64	M	4.0	5.5	71.7	12.1	1100	5	81.4	STHasStrength
WB 181	WB 9653	HRS	15.3	.	73.8	14.2	0.40	1.56	M	2.0	4.7	70.5	9.2	1175	6	80.2	STHasStrength
LIMAGR 143	LCS PRO	HRS	16.2	.	71.9	14.3	0.38	1.69	MH	5.0	4.5	76.6	12.2	1165	6	86.8	LgSTStrong
LIMAGR 171	LCS REBEL(LNR 13-0594)	HRS	16.3	.	73.3	15.4	0.39	1.64	M	4.0	5.5	74.3	15.0	1175	6	84.0	STHasStrength
LIMAGR 181	LCS CANNON	HRS	16.2	.	72.7	15.3	0.38	1.62	MH	4.0	4.2	74.8	11.3	1190	7	84.5	LgSTSiStrong
WF 161	HRS 3616	HRS	16.7	.	68.3	14.0	0.39	1.85	M	3.0	5.6	76.0	11.6	1200	6	86.7	STBucky
WF 162	HRS 3504	HRS	15.4	.	73.7	14.3	0.42	1.60	M	3.0	6.0	72.7	17.0	1190	5	82.4	STHasStrength
WF 181	HRS 3419	HRS	16.5	.	67.7	15.2	0.42	1.79	MH	3.0	5.1	74.1	12.8	1270	7	83.8	HasStrength
MEAN			16.0	.	70.6	14.8	0.40	1.68		3	4.8	71.6	11.9	1174	6	81.6	

2018 OVERALL SUMMARY FOR MILLING AND BAKING TEST FOR PRELIMINARY SPRING WHEAT NURSERY, (BOZEMAN, and HAVRE)

LINE	VARIETY / PEDIGREE	Class	Wheat Protein, % (12%mb.)	Single Kernel Hardness	Flour Yield, %	Flour Protein, % (14%mb.)	Flour Ash, %	Wheat Ash, %	Mixing Tolerance	Mixing Time, min	Mixing Time, min	Bake Mixing Time, min	Loaf Volume (cc)	Crumb Grain Score	Bake Water Absorption, %
MT 1801	VIDA/MT 1255	HRS	15.4	69	68.6	13.6	0.38	1.52	3	3.4	57.9	4.8	1098	6	68.1
MT 1802	MT 1206/MT 1264	HRS	15.2	70	70.0	13.9	0.38	1.50	2	4.1	61.0	9.3	1213	6	71.5
MT 1803	MT 1206/MT 1264	HRS	15.2	69	70.9	13.7	0.36	1.42	3	4.8	62.4	11.1	1178	6	72.3
MT 1804	MT 1142/MT 1225	HRS	15.6	70	70.5	14.1	0.35	1.46	2	2.9	60.1	5.2	1243	5	70.3
MT 1805	MT 1142/MT 1225	HRS	15.7	71	69.5	14.5	0.36	1.44	2	2.6	61.3	4.3	1200	4	70.5
MT 1806	MT 1142/MT 1225	HRS	15.9	67	67.0	14.4	0.37	1.49	2	2.3	62.2	3.1	1130	6	70.1
MT 1807	VIDA/MO8/3-4	HRS	14.9	79	73.2	13.7	0.39	1.36	3	4.2	61.3	9.0	1140	6	71.0
MT 1808	MT 1142/ULEN	HRS	15.8	75	70.4	13.9	0.38	1.51	3	3.3	62.1	7.7	1240	6	72.1
MT 1809	VIDA/MO 09/3-4	HRS	15.2	85	70.9	13.0	0.37	1.37	3	2.6	59.6	4.3	1145	4	69.3
MT 1810	MT 1142/TRVERSE	HRS	15.2	79	66.2	13.8	0.43	1.48	2	2.9	70.3	4.2	1128	5	79.0
MT 1811	MT 1142/MTHW1150	HRS	15.2	78	68.6	13.8	0.37	1.53	3	4.0	69.8	7.8	1195	6	79.5
MT 1812	MT 1053/MN06028	HRS	15.7	74	71.8	14.0	0.38	1.65	2	4.0	74.5	10.3	1218	6	85.0
MT 1813	MT 1053/MN06028	HRS	15.9	75	69.2	14.6	0.41	1.66	4	3.5	76.5	7.0	1263	6	86.4
MT 1814	MT 1206/MT 1203	HRS	15.8	63	70.2	13.8	0.37	1.57	3	2.1	68.6	3.7	1178	7	77.8
MT 1815	MT 1206/MT 1203	HRS	15.5	71	71.2	14.7	0.41	1.54	4	5.0	71.3	14.0	1250	5	81.5
MT 1816	MT 1206/MT 1203	HRS	15.6	70	70.6	14.6	0.38	1.53	3	3.0	70.4	6.5	1245	5	80.4
MT 1817	MT 1206/MT 1231	HRS	15.5	65	73.1	14.4	0.40	1.54	4	6.6	75.0	8.2	1210	6	85.4
MT 1818	VIDA/ULEN	HRS	15.5	67	69.2	14.0	0.37	1.64	3	3.3	70.9	7.2	1303	6	80.9
MT 1819	VIDA/ULEN	HRS	15.6	83	70.0	13.7	0.41	1.50	3	3.3	68.2	8.2	1148	6	77.9
MT 1820	VIDA/H0800103L	HRS	15.7	79	69.6	13.3	0.41	1.56	3	3.9	70.6	9.2	1180	6	81.0
MT 1821	VIDA/H0800103L	HRS	15.3	74	72.6	13.1	0.39	1.52	2	3.8	69.6	9.3	1173	7	79.6
MT 1822	VIDA/H0800103L	HRS	15.8	81	68.9	13.5	0.39	1.55	3	4.5	70.6	10.4	1158	6	80.3
MT 1823	VIDA/H0800103L	HRS	14.8	69	72.5	13.3	0.39	1.48	1	3.1	66.8	6.6	1125	6	76.5
MT 1824	MT 1206/MT 1273	HRS	15.2	76	70.6	13.2	0.38	1.58	3	3.7	69.0	7.7	1160	6	78.7
MT 1825	MT 1142/MT 1203	HRS	15.5	79	66.3	14.0	0.42	1.57	3	3.0	69.2	3.7	1125	6	78.4
MT 1826	MT 1142/MT 1203	HRS	15.7	71	68.4	14.2	0.41	1.56	3	2.5	69.5	4.3	1090	6	78.9
MT 1827	VIDA/SD4178	HRS	15.7	82	69.7	14.1	0.42	1.54	3	3.3	69.4	7.3	1145	5	79.1
MT 1828	MT 1007/ULEN	HRS	15.6	70	70.0	13.5	0.41	1.60	2	2.5	67.8	4.0	1110	6	77.7
MT 1829	MT 1007/ULEN	HRS	16.2	63	71.4	14.8	0.39	1.63	3	3.5	71.5	9.5	1140	7	81.5
MT 1830	MT 1007/ULEN	HRS	15.6	70	69.1	13.9	0.39	1.54	4	3.7	71.5	8.0	1163	6	81.4
MT 1831	MT 1007/ULEN	HRS	16.0	72	70.2	14.1	0.42	1.63	2	2.4	69.3	3.4	1098	6	79.0
MT 1832	MT 1007/ULEN	HRS	15.5	69	69.4	13.9	0.41	1.64	3	3.7	72.0	8.4	1143	6	82.2
MT 1833	VIDA/MN06028	HRS	15.6	73	72.8	13.5	0.35	1.60	3	3.4	70.3	6.9	1163	5	80.0
MT 1834	VIDA/MN06028	HRS	16.3	70	71.1	15.0	0.39	1.67	3	4.2	74.7	10.1	1260	5	84.4
MT 1835	MT 1142/MT 1219	HRS	16.0	66	70.6	13.7	0.38	1.58	3	3.4	71.3	7.0	1205	6	81.0
MT 1836	MT 1007/MO8/3-4	HRS	16.1	71	69.9	14.7	0.40	1.52	2	4.0	73.6	7.4	1208	5	83.3
MT 1837	VIDA/MT 1219	HRS	15.3	68	69.9	13.8	0.38	1.60	3	3.6	73.2	6.1	1198	5	83.1
MT 1838	MT 1206/MT 1172	HRS	15.1	65	68.8	13.5	0.40	1.48	2	3.0	70.8	5.1	1073	6	80.0
MT 1839	MT 1206/MT 1172	HRS	16.3	70	69.4	14.1	0.40	1.62	2	2.3	69.2	3.3	1160	5	77.4
MT 1840	VIDA/LIMAGR1	HRS	14.8	62	68.7	13.1	0.38	1.49	3	6.5	69.5	16.4	1175	6	80.4
MT 1841	MT 1142/H0800103L	HRS	15.8	66	69.4	14.2	0.39	1.52	2	3.6	70.4	7.6	1148	6	80.1

LINE	VARIETY / PEDIGREE	Class	Wheat Protein, % (12% <i>m.b.</i> )	Single Kernel Hardness	Flour Yield, %	Flour Protein, % (14% <i>m.b.</i> )	Flour Ash, %	Wheat Ash, %	Mixing Tolerance	Mixing Time, min	Mixing Water Absorption, %	Bake Mixing Time, min	Loaf Volume (cc)	Crumb Grain Score	Bake Water Absorption, %
MT 1842	MT 1142/H0800103L	HRS	14.9	65	71.9	13.0	0.37	1.57	1	2.7	67.2	4.8	1125	5	77.2
MT 1843	MT 1007/MT 1225	HRS	15.2	83	68.7	13.9	0.43	1.49	2	3.2	69.0	7.0	1068	5	79.0
MT 1844	MT 1007/MT 1225	HRS	15.5	70	68.8	14.2	0.43	1.65	3	4.1	71.0	7.7	1103	5	80.9
MT 1845	MT 1142/M0 09/3-4	HRS	16.0	75	71.2	14.2	0.38	1.58	1	2.4	71.0	4.8	1153	5	80.9
MT 1846	MT 1053/SD4265	HRS	16.2	70	72.0	15.1	0.38	1.60	2	2.9	73.2	5.8	1160	6	82.9
MT 1847	VIDA/MTHW1150	HRS	14.8	80	70.7	13.6	0.40	1.60	1	3.2	68.9	4.9	1090	5	78.1
MT 1848	VIDA/MTHW1150	HRS	16.3	71	69.7	15.2	0.40	1.58	3	4.0	74.5	7.7	1233	4	84.5
MT 1849	VIDA/MT 1203	HRS	15.8	68	70.5	14.4	0.40	1.63	1	1.6	69.0	2.1	1048	4	75.2
MT 1850	MT 1206/M0 09/3-4	HRS	15.0	75	71.1	13.8	0.41	1.50	3	2.9	68.5	4.1	1105	7	78.2
MT 1851	VIDA/MT 1264	HRS	15.5	80	70.2	13.9	0.43	1.52	1	2.7	66.9	4.0	1085	7	75.6
MT 1852	MT 1007/MT 1219	HRS	15.7	63	70.5	14.3	0.38	1.59	5	4.9	73.6	12.4	1235	6	83.5
MT 1853	MT 1053/MT 1273	HRS	14.7	76	73.6	12.6	0.37	1.50	2	3.9	70.1	7.2	1168	6	79.8
MT 1854	MT 1053/MO8/3-4	HRS	16.2	71	71.3	14.4	0.40	1.65	2	2.8	72.1	4.7	1205	6	81.6
MT 1855	MT 1053/MO8/3-4	HRS	15.1	78	72.2	13.2	0.40	1.62	3	4.1	72.7	7.9	1170	6	82.6
MT 1856	MT 1007/MT 1203	HRS	16.0	64	65.1	15.1	0.42	1.56	2	2.9	73.2	5.3	1160	5	82.9
MT 1857	MT 1142/MT 1273	HRS	15.1	75	70.2	13.6	0.41	1.53	3	3.7	71.7	7.4	1243	5	81.4
MT 1858	MT 1206/MT 1219	HRS	15.4	68	71.0	13.4	0.38	1.61	3	3.4	70.5	6.9	1195	6	80.5
MT 1859	MT 1206/MT 1219	HRS	15.8	66	70.5	14.3	0.41	1.59	3	3.5	71.7	7.3	1210	6	81.6
MT 1860	MT 1206/MT 1219	HRS	15.8	67	69.5	14.4	0.43	1.54	2	3.1	71.8	5.9	1113	6	81.5
MT 1861	MT 1142/MT 1264	HRS	15.2	64	70.5	13.3	0.37	1.54	4	5.2	71.5	13.8	1185	5	82.0
MT 1862	MT 1142/MT 1264	HRS	15.2	66	70.2	13.8	0.38	1.48	3	4.4	71.8	9.2	1140	5	81.5
MT 1863	MT 1007/MT 1273	HRS	15.2	66	70.4	14.2	0.39	1.48	3	6.7	72.7	22.4	1165	6	83.4
MT 1864	VIDA/MT 1231	HRS	15.1	75	72.1	13.5	0.41	1.47	4	5.3	73.0	12.1	1213	6	83.0
MT 1865	VidaXConan(BC3F2)a2.1.3.6	HRS	14.5	79	72.8	13.2	0.40	1.52	3	4.4	71.8	9.3	1145	6	81.5
MT 1866	VidaXConan(BC3F2)a4.6.8.3	HRS	14.7	83	71.9	12.8	0.38	1.58	3	4.8	71.6	10.6	1130	6	80.8
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	HRS	15.3	65	67.6	13.8	0.41	1.57	3	5.3	71.8	7.6	1178	5	81.5
MT 1868	MT 1053/LIMAGR1	HRS	14.7	77	70.1	12.6	0.38	1.66	4	5.2	73.3	9.9	1293	6	83.5
MT 1869	VIDA/M0 09/3-4	HRS	15.3	81	71.0	14.2	0.42	1.52	1	3.2	72.8	5.6	1090	5	82.5
MT 1870	VIDA/H0800103L	HRS	14.7	67	70.8	13.3	0.38	1.55	2	4.4	70.4	10.3	1108	5	80.1
MT 1871	MT 1007/TRVERSE	HRS	14.6	66	71.4	13.3	0.40	1.52	2	3.8	71.4	6.8	1045	6	79.1
MT 1872	MT 1007/M0 09/3-4	HRS	14.6	75	71.0	12.5	0.36	1.59	4	5.1	71.9	11.6	1170	6	82.4
MT 1873	VIDA/MT 1203	HRS	15.0	72	70.5	13.6	0.41	1.50	0	2.3	70.2	2.5	1013	5	75.4
MT 1874	MT 1142/MT 1172	HRS	15.2	63	70.7	12.6	0.35	1.53	2	3.1	71.2	6.6	1053	5	79.9
MT 1875	VIDA/MT 1172	HRS	14.4	66	71.7	13.1	0.38	1.55	1	2.6	69.3	4.4	1043	6	77.0
MT 1876	MT 1007/MT 1172	HRS	14.7	66	69.0	12.9	0.39	1.49	3	3.3	69.1	4.3	1045	5	77.8
CI 13596	FORTUNA	HRS	15.4	67	71.8	13.9	0.41	1.61	2	3.6	68.5	5.2	1160	6	78.2
PI 574642	MCNEAL	HRS	15.8	81	68.3	14.1	0.41	1.72	5	8.5	76.0	16.8	1295	5	87.7
ND 695	REEDER	HRS	15.2	72	69.6	13.9	0.39	1.51	2	3.9	71.3	7.6	1155	7	81.0
PI 633974	CHOTEAU	HRS	15.4	69	70.3	12.9	0.37	1.55	3	3.5	70.5	6.2	1113	6	80.4
PI 642366	VIDA	HRS	14.2	78	72.3	13.2	0.37	1.56	3	4.4	70.5	9.8	1115	5	80.2
	MEAN		15.4	72	70.3	13.8	0.39	1.54	2	3.7	69.9	7.5	1158	5	79.5

2018 MILLING AND BAKING TEST FOR PRELIMINARY SPRING WHEAT NURSERY, BOZEMAN (DRY)

LINE	VARIETY / PEDIGREE	Class	Wheat Protein, % (12% <i>m.b.</i> )	Single Kernel Hardness	Flour Yield, %	Flour Protein, % (14% <i>m.b.</i> )	Flour Ash, %	Wheat Ash, %	Mixograph Type	Mixing Tolerance	Mixing Time, min	Mixing Water Absorption, %	Bake Mixing Time, min	Loaf Volume (cc)	Crumb Grain Score	Bake Water Absorption, %	
MT 1801	VIDA/MT 1255	HRS	15.1	65	68.1	12.9	0.40	1.56	MH	3	3.7	66.0	4.8	1155	5	75.7	STHasStrength
MT 1802	MT 1206/MT 1264	HRS	14.7	63	69.5	13.2	0.41	1.43	MH	2	2.8	66.6	5.8	1185	7	77.8	Bucky
MT 1803	MT 1206/MT 1264	HRS	14.5	66	70.6	12.5	0.37	1.33	MH	2	2.6	66.5	6.0	1165	6	76.7	SISTStrong
MT 1804	MT 1142/MT 1225	HRS	14.6	67	70.9	12.9	0.36	1.44	M	2	2.4	64.9	3.8	1185	6	75.6	LgSTHasStrength
MT 1805	MT 1142/MT 1225	HRS	15.1	66	68.4	13.7	0.39	1.37	M	1	2.0	67.1	2.5	1120	5	75.8	STHasStrength
MT 1806	MT 1142/MT 1225	HRS	15.5	60	65.7	14.0	0.42	1.55	M	2	2.2	67.6	2.2	1060	6	73.8	HasStrength
MT 1807	VIDA/MO8/3-4	HRS	14.7	72	72.7	13.3	0.41	1.31	M	3	3.0	65.9	4.9	1150	5	75.6	LgSTHasStrength
MT 1808	MT 1142/ULEN	HRS	15.7	66	70.5	13.5	0.40	1.54	M	2	2.1	66.9	3.4	1200	6	76.6	LgSTSIStrong
MT 1809	VIDA/MO 09/3-4	HRS	14.7	78	70.3	11.6	0.39	1.38	MH	3	1.8	63.8	2.5	1115	4	73.5	LgSTHasStrength
MT 1810	MT 1142/TRVERSE	HRS	14.9	70	66.0	13.6	0.44	1.36	M	1	1.8	67.0	2.2	1095	4	74.7	LgSTHasStrength
MT 1811	MT 1142/MTHW1150	HRS	15.0	70	67.1	13.4	0.37	1.36	M	4	3.1	69.1	5.4	1195	5	78.8	STStrong
MT 1812	MT 1053/MN06028	HRS	15.2	69	71.5	13.7	0.38	1.60	MH	2	3.3	71.5	6.7	1225	5	82.7	STBucky
MT 1813	MT 1053/MN06028	HRS	15.7	68	69.2	14.4	0.42	1.66	MH	2	2.9	75.5	5.2	1315	6	85.7	LgSTStrong
MT 1814	MT 1206/MT 1203	HRS	15.4	58	70.4	12.5	0.37	1.44	MH	3	1.5	65.7	2.6	1165	6	75.4	STHasStrength
MT 1815	MT 1206/MT 1203	HRS	15.1	67	71.4	14.2	0.42	1.38	MH	3	3.5	68.1	7.8	1270	5	78.8	LgSTStrong
MT 1816	MT 1206/MT 1203	HRS	15.1	68	71.0	14.0	0.39	1.41	MH	2	2.3	67.5	4.1	1250	6	77.7	STHasStrength
MT 1817	MT 1206/MT 1231	HRS	15.2	61	73.8	13.9	0.41	1.36	M	4	4.1	71.5	8.4	1230	6	82.7	LgSTStrong
MT 1818	VIDA/ULEN	HRS	15.3	64	69.2	13.6	0.37	1.52	M	2	2.4	68.9	4.2	1300	6	78.6	SIStrong
MT 1819	VIDA/ULEN	HRS	14.8	80	70.5	12.4	0.40	1.31	M	2	2.5	64.9	4.1	1120	6	74.6	STHasStrength
MT 1820	VIDA/H0800103L	HRS	15.3	69	69.1	11.6	0.39	1.39	M	2	3.3	68.3	6.8	1180	5	79.5	LgSTBucky
MT 1821	VIDA/H0800103L	HRS	14.9	70	72.9	11.8	0.36	1.44	M	2	3.1	68.5	6.4	1145	6	78.7	SIStrong
MT 1822	VIDA/H0800103L	HRS	15.2	75	68.5	11.9	0.38	1.41	M	2	3.8	68.8	6.6	1110	6	78.5	Strong
MT 1823	VIDA/H0800103L	HRS	14.6	64	71.7	13.0	0.40	1.38	M	1	2.1	65.8	3.9	1070	5	75.5	STHasStrength
MT 1824	MT 1206/MT 1273	HRS	14.6	72	70.2	11.7	0.39	1.43	MH	2	2.6	65.7	3.4	1115	6	75.4	STHasStrength
MT 1825	MT 1142/MT 1203	HRS	15.7	71	65.8	13.9	0.42	1.41	M	2	2.3	68.5	2.4	1085	5	76.7	HasStrength
MT 1826	MT 1142/MT 1203	HRS	15.5	66	67.4	13.9	0.41	1.40	MH	3	1.9	68.4	2.7	1055	5	77.6	STHasStrength
MT 1827	VIDA/SD4178	HRS	15.6	78	67.8	13.8	0.44	1.48	M	2	2.3	67.1	3.3	1100	6	76.8	STSIStrong
MT 1828	MT 1007/ULEN	HRS	15.3	66	70.1	12.3	0.40	1.51	M	2	2.2	66.0	2.8	1100	5	76.2	STHasStrength
MT 1829	MT 1007/ULEN	HRS	15.8	61	71.8	14.4	0.41	1.38	M	2	2.4	69.3	5.2	1125	6	79.5	STHasStrength
MT 1830	MT 1007/ULEN	HRS	15.0	67	69.6	12.9	0.39	1.42	MH	4	3.2	69.4	6.5	1130	5	79.6	LgSTStrong
MT 1831	MT 1007/ULEN	HRS	15.7	72	69.8	13.3	0.43	1.55	M	2	2.3	69.8	3.2	1095	5	79.5	STHasStrength
MT 1832	MT 1007/ULEN	HRS	15.4	69	69.4	13.6	0.43	1.51	M	3	3.3	72.0	6.3	1130	5	81.7	SIStrong
MT 1833	VIDA/MN06028	HRS	15.2	73	72.3	12.2	0.33	1.46	M	3	3.1	69.0	4.9	1150	5	78.7	STStrong
MT 1834	VIDA/MN06028	HRS	16.1	68	70.2	14.7	0.40	1.62	MH	3	3.7	73.9	7.7	1280	5	83.6	STStrong
MT 1835	MT 1142/MT 1219	HRS	15.6	62	70.6	12.3	0.37	1.38	M	2	2.7	68.9	4.5	1145	6	78.6	LgSTHasStrength
MT 1836	MT 1007/MO8/3-4	HRS	15.8	68	69.7	14.2	0.42	1.41	M	2	3.4	72.8	6.0	1155	5	82.5	LgSTHasStrength
MT 1837	VIDA/MT 1219	HRS	14.9	67	68.9	13.3	0.39	1.42	M	3	2.9	71.6	4.8	1190	5	81.8	SIStrong
MT 1838	MT 1206/MT 1172	HRS	14.5	62	67.7	12.7	0.40	1.32	M	2	2.9	69.1	4.3	1065	6	78.8	STHasStrength
MT 1839	MT 1206/MT 1172	HRS	15.9	68	69.4	12.6	0.39	1.48	M	2	2.0	68.8	2.7	1170	5	76.5	LgSTHasStrength
MT 1840	VIDA/LIMAGR1	HRS	14.5	57	68.5	12.6	0.38	1.36	M	3	5.7	67.4	14.1	1130	5	79.6	LgSTBucky
MT 1841	MT 1142/H0800103L	HRS	15.4	61	68.0	13.7	0.40	1.34	M	2	3.1	69.1	5.2	1145	5	78.8	LgSTSIStrong

LINE	VARIETY / PEDIGREE	Class	Wheat Protein, % (12% m.b.)	Single Kernel Hardness	Flour Yield, %	Flour Protein, % (14% m.b.)	Flour Ash, %	Wheat Ash, %	Mixograph Type	Mixing Tolerance	Mixing Time, min	Mixing Water Absorption, %	Bake Mixing Time, min	Loaf Volume (cc)	Crumb Grain Score	Bake Water Absorption, %	
MT 1842	MT 1142/H0800103L	HRS	14.5	61	71.6	12.0	0.35	1.42	M	1	1.9	64.5	3.2	1140	5	74.7	LgSTHasStrength
MT 1843	MT 1007/MT 1225	HRS	14.8	77	67.8	13.4	0.45	1.33	MH	3	2.4	66.5	4.2	1075	6	76.7	STHasStrength
MT 1844	MT 1007/MT 1225	HRS	15.1	65	68.6	13.7	0.45	1.53	M	3	3.5	69.4	4.7	1080	5	79.6	LgSTStrong
MT 1845	MT 1142/M0 09/3-4	HRS	15.8	72	71.5	13.2	0.37	1.42	M	0	1.9	66.2	2.7	1100	5	76.4	LgSTHasStrength
MT 1846	MT 1053/SD4265	HRS	16.2	64	71.5	14.9	0.39	1.44	M	1	2.3	71.9	3.7	1120	6	81.6	LgSTSIStrong
MT 1847	VIDA/MTHW1150	HRS	14.8	72	69.6	13.4	0.40	1.50	M	1	3.0	68.9	3.8	1115	6	77.6	STSIStrong
MT 1848	VIDA/MTHW1150	HRS	16.7	68	68.2	15.3	0.42	1.57	MH	3	3.6	74.3	6.5	1265	4	84.5	LgSTStrong
MT 1849	VIDA/MT 1203	HRS	15.3	57	70.4	13.9	0.41	1.46	M	0	1.2	69.2	1.0	965	4	72.9	SomeStrength
MT 1850	MT 1206/M0 09/3-4	HRS	14.4	74	70.3	13.1	0.43	1.37	MH	2	2.1	68.1	3.1	1045	6	77.8	SISTHasStrength
MT 1851	VIDA/MT 1264	HRS	14.7	72	70.3	13.0	0.45	1.39	M	1	2.1	64.1	2.2	1010	6	71.8	STSomeStrength
MT 1852	MT 1007/MT 1219	HRS	15.4	60	70.6	14.0	0.39	1.47	MH	4	4.0	73.6	9.2	1160	5	83.8	STBucky
MT 1853	MT 1053/MT 1273	HRS	14.3	74	73.6	11.5	0.35	1.43	M	2	3.4	68.9	5.6	1110	5	78.6	STHasStrength
MT 1854	MT 1053/MO8/3-4	HRS	15.8	67	71.9	12.8	0.37	1.56	M	1	2.6	72.0	4.6	1200	6	82.2	STStrong
MT 1855	MT 1053/MO8/3-4	HRS	14.6	73	71.6	11.8	0.38	1.44	M	2	3.0	70.5	4.2	1150	6	80.7	STHasStrength
MT 1856	MT 1007/MT 1203	HRS	15.9	59	67.6	14.8	0.46	1.47	M	2	2.8	74.0	4.0	1100	6	83.7	STHasStrength
MT 1857	MT 1142/MT 1273	HRS	15.0	68	69.7	13.4	0.42	1.46	M	2	2.8	71.9	5.3	1175	4	81.6	STHasStrength
MT 1858	MT 1206/MT 1219	HRS	15.0	65	70.8	12.2	0.37	1.47	M	3	2.5	69.3	4.9	1185	6	79.5	STSIStrong
MT 1859	MT 1206/MT 1219	HRS	14.9	66	70.2	13.3	0.40	1.47	M	2	2.8	70.6	5.5	1125	5	80.8	STHasStrength
MT 1860	MT 1206/MT 1219	HRS	15.5	62	69.2	14.0	0.44	1.40	M	2	2.8	71.0	5.0	1095	7	80.7	STHasStrength
MT 1861	MT 1142/MT 1264	HRS	15.1	60	70.9	12.3	0.35	1.41	MH	3	4.3	71.0	11.4	1110	5	81.7	SI Bucky
MT 1862	MT 1142/MT 1264	HRS	14.5	61	70.5	13.1	0.39	1.31	M	2	4.0	71.1	7.0	1050	5	80.8	STHasStrength
MT 1863	MT 1007/MT 1273	HRS	14.7	63	70.2	13.8	0.40	1.38	M	2	6.4	72.0	19.4	1125	6	82.7	STBucky
MT 1864	VIDA/MT 1231	HRS	14.8	67	71.6	13.2	0.41	1.28	M	4	4.0	72.0	7.6	1120	4	81.7	LgSTSIStrong
MT 1865	VidaXConan(BC3F2)a2.1.3.6	HRS	14.0	73	72.3	12.6	0.41	1.43	M	2	3.7	70.6	6.1	1090	6	79.8	SISTHasStrength
MT 1866	VidaXConan(BC3F2)a4.6.8.3	HRS	14.1	74	71.4	11.3	0.37	1.46	M	2	3.6	69.8	5.6	1060	5	78.5	LgSTHasStrength
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	HRS	14.6	62	67.5	12.9	0.44	1.42	LM	3	4.5	71.1	5.3	1105	5	80.8	LgSTHasStrength
MT 1868	MT 1053/LIMAGR1	HRS	14.3	72	70.5	11.6	0.38	1.56	MH	3	3.8	69.8	4.8	1255	5	79.5	LgSTSIStrong
MT 1869	VIDA/M0 09/3-4	HRS	14.8	77	70.8	13.7	0.44	1.45	M	1	2.9	69.9	3.2	1110	5	79.6	STSIStrong
MT 1870	VIDA/H0800103L	HRS	14.6	63	70.1	13.2	0.39	1.50	M	2	4.1	70.1	7.8	1070	4	79.8	LgSTSIStrong
MT 1871	MT 1007/TRVERSE	HRS	14.1	63	71.2	12.7	0.42	1.44	LM	1	2.9	69.2	2.2	1010	5	74.9	SISTSomeStrength
MT 1872	MT 1007/M0 09/3-4	HRS	14.3	71	72.3	11.4	0.36	1.44	M	3	4.4	70.3	8.8	1130	7	81.5	STStrong
MT 1873	VIDA/MT 1203	HRS	14.5	64	70.2	13.0	0.42	1.40	LM	0	2.2	68.1	1.1	1000	4	70.8	STSomeStrength
MT 1874	MT 1142/MT 1172	HRS	14.7	58	69.9	11.0	0.34	1.38	M	1	2.4	69.0	3.2	1025	5	76.7	STHasStrength
MT 1875	VIDA/MT 1172	HRS	14.1	60	70.8	12.7	0.40	1.44	M	1	2.7	68.1	2.5	1000	6	73.8	HasStrength
MT 1876	MT 1007/MT 1172	HRS	14.3	64	67.8	12.3	0.39	1.28	M	2	3.0	68.3	3.3	1000	4	76.0	LgSTHasStrength
CI 13596	FORTUNA	HRS	15.4	61	72.1	13.8	0.40	1.48	LM	1	2.8	69.2	3.4	1140	6	78.9	STSIStrong
PI 574642	MCNEAL	HRS	16.1	76	68.2	14.4	0.42	1.62	M	4	6.5	74.6	11.2	1295	5	86.8	LgSTBucky
ND 695	REEDER	HRS	14.9	67	68.9	13.7	0.41	1.41	M	2	3.9	70.2	5.5	1155	7	79.9	STHasStrength
PI 633974	CHOTEAU	HRS	15.0	65	70.5	11.5	0.35	1.40	MH	3	2.9	68.4	4.2	1100	6	78.6	STHasStrength
PI 642366	VIDA	HRS	14.0	72	71.9	13.5	0.36	1.46	M	3	4.0	69.0	5.9	1055	5	78.7	STHasStrength
	MEAN		15.0	67	70.0	13.1	0.40	1.44		2	3.0	69.1	5.1	1131	5	78.7	

2018 MILLING AND BAKING TEST FOR PRELIMINARY SPRING WHEAT NURSERY, HAVRE (DRY)

LINE	VARIETY / PEDIGREE	Class	Wheat Protein, % (12% <i>m.b.</i> )	Single Kernel Hardness	Flour Yield, %	Flour Protein, % (14% <i>m.b.</i> )	Flour Ash, %	Wheat Ash, %	Mixograph Type	Mixing Tolerance	Mixing Time, min	Mixing Time, min	Mixing Time, min	Loaf Volume (cc)	Crumb Grain Score	Bake Water Absorption, %	
MT 1801	VIDA/MT 1255	HRS	15.6	72	69.1	14.2	0.36	1.48	M	2	3.0	49.7	4.7	1040	6	60.4	SISTStrong
MT 1802	MT 1206/MT 1264	HRS	15.7	76	70.4	14.5	0.35	1.56	M	2	5.3	55.4	12.7	1240	5	65.1	STStrong
MT 1803	MT 1206/MT 1264	HRS	15.8	71	71.1	14.8	0.34	1.50	M	3	6.9	58.2	16.1	1190	6	67.9	SIStrong
MT 1804	MT 1142/MT 1225	HRS	16.5	72	70.1	15.2	0.33	1.47	M	2	3.4	55.3	6.5	1300	4	65.0	LgSTHasStrength
MT 1805	MT 1142/MT 1225	HRS	16.2	76	70.5	15.3	0.33	1.50	M	2	3.2	55.4	6.1	1280	3	65.1	LgSTHasStrength
MT 1806	MT 1142/MT 1225	HRS	16.3	73	68.2	14.8	0.31	1.43	M	2	2.4	56.7	4.0	1200	5	66.4	STHasStrength
MT 1807	VIDA/MO8/3-4	HRS	15.1	86	73.6	14.0	0.36	1.40	M	3	5.4	56.7	13.0	1130	6	66.4	STSI Bucky
MT 1808	MT 1142/ULEN	HRS	15.8	84	70.2	14.3	0.35	1.48	MH	4	4.4	57.3	11.9	1280	6	67.5	STSIStrong
MT 1809	VIDA/MO 09/3-4	HRS	15.6	91	71.5	14.4	0.35	1.35	MH	3	3.3	55.3	6.0	1175	4	65.0	LgSTHasStrength
MT 1810	MT 1142/TRVERSE	HRS	15.4	87	66.3	13.9	0.41	1.59	MH	3	4.0	73.5	6.2	1160	6	83.2	STHasStrength
MT 1811	MT 1142/MTHW1150	HRS	15.4	85	70.1	14.2	0.37	1.69	M	2	4.9	70.5	10.1	1195	7	80.2	HasStrength
MT 1812	MT 1053/MN06028	HRS	16.1	78	72.1	14.3	0.37	1.69	M	2	4.6	77.5	13.9	1210	7	87.2	SIStrong
MT 1813	MT 1053/MN06028	HRS	16.0	82	69.2	14.8	0.39	1.66	MH	5	4.0	77.4	8.8	1210	6	87.1	LgSTStrong
MT 1814	MT 1206/MT 1203	HRS	16.1	68	70.0	15.1	0.37	1.70	MH	2	2.6	71.4	4.7	1190	7	80.1	HasStrength
MT 1815	MT 1206/MT 1203	HRS	15.8	75	71.0	15.1	0.39	1.70	MH	4	6.5	74.4	20.2	1230	4	84.1	STHasStrength
MT 1816	MT 1206/MT 1203	HRS	16.0	71	70.2	15.2	0.37	1.65	MH	3	3.7	73.3	8.9	1240	4	83.0	STHasStrength
MT 1817	MT 1206/MT 1231	HRS	15.8	69	72.4	14.8	0.39	1.71	M	4	9.0	78.4	7.9	1190	5	88.1	LgSTStrong
MT 1818	VIDA/ULEN	HRS	15.6	70	69.2	14.3	0.36	1.76	MH	3	4.2	72.9	10.2	1305	6	83.1	LgSTSIStrong
MT 1819	VIDA/ULEN	HRS	16.3	86	69.5	15.0	0.41	1.68	M	3	4.0	71.5	12.2	1175	5	81.2	STHasStrength
MT 1820	VIDA/H0800103L	HRS	16.1	89	70.0	15.0	0.42	1.73	MH	3	4.5	72.8	11.5	1180	6	82.5	Strong
MT 1821	VIDA/H0800103L	HRS	15.6	78	72.3	14.4	0.41	1.60	MH	2	4.5	70.7	12.1	1200	7	80.4	HasStrength
MT 1822	VIDA/H0800103L	HRS	16.3	87	69.2	15.1	0.40	1.68	M	3	5.2	72.4	14.2	1205	6	82.1	LgSTBucky
MT 1823	VIDA/H0800103L	HRS	15.0	74	73.2	13.6	0.37	1.58	M	1	4.0	67.7	9.2	1180	7	77.4	STHasStrength
MT 1824	MT 1206/MT 1273	HRS	15.7	80	70.9	14.6	0.37	1.73	M	3	4.7	72.3	12.0	1205	6	82.0	LgSTStrong
MT 1825	MT 1142/MT 1203	HRS	15.2	87	66.7	14.0	0.42	1.72	M	3	3.7	69.8	4.9	1165	6	80.0	HasStrength
MT 1826	MT 1142/MT 1203	HRS	15.9	76	69.3	14.5	0.40	1.71	MH	2	3.0	70.5	5.8	1125	6	80.2	STHasStrength
MT 1827	VIDA/SD4178	HRS	15.8	86	71.5	14.4	0.40	1.60	M	3	4.3	71.7	11.2	1190	4	81.4	SISTHasStrength
MT 1828	MT 1007/ULEN	HRS	15.9	73	69.9	14.7	0.41	1.69	M	1	2.8	69.5	5.2	1120	6	79.2	Strong
MT 1829	MT 1007/ULEN	HRS	16.5	64	70.9	15.2	0.37	1.87	M	3	4.6	73.7	13.7	1155	7	83.4	Strong
MT 1830	MT 1007/ULEN	HRS	16.1	72	68.5	14.9	0.39	1.65	M	3	4.1	73.5	9.5	1195	7	83.2	SI Bucky
MT 1831	MT 1007/ULEN	HRS	16.2	71	70.5	14.9	0.41	1.71	M	2	2.5	68.7	3.5	1100	6	78.4	LgSTHasStrength
MT 1832	MT 1007/ULEN	HRS	15.5	69	69.4	14.2	0.39	1.77	M	2	4.1	71.9	10.4	1155	7	82.6	STMucky
MT 1833	VIDA/MN06028	HRS	15.9	73	73.2	14.7	0.36	1.73	MH	3	3.6	71.5	8.9	1175	5	81.2	LgSTHasStrength
MT 1834	VIDA/MN06028	HRS	16.4	72	71.9	15.2	0.38	1.71	MH	3	4.6	75.4	12.4	1240	5	85.1	STStrong
MT 1835	MT 1142/MT 1219	HRS	16.4	70	70.6	15.0	0.39	1.77	M	3	4.0	73.7	9.4	1265	6	83.4	STHasStrength
MT 1836	MT 1007/MO8/3-4	HRS	16.3	74	70.0	15.1	0.38	1.62	M	2	4.5	74.4	8.7	1260	5	84.1	STStrong
MT 1837	VIDA/MT 1219	HRS	15.6	69	70.9	14.3	0.37	1.77	M	3	4.2	74.7	7.4	1205	4	84.4	STHasStrength
MT 1838	MT 1206/MT 1172	HRS	15.6	68	69.8	14.2	0.40	1.64	M	2	3.0	72.5	5.9	1080	6	81.2	STHasStrength
MT 1839	MT 1206/MT 1172	HRS	16.7	72	69.3	15.5	0.40	1.75	M	2	2.6	69.5	3.8	1150	5	78.2	LgSTHasStrength
MT 1840	VIDA/LIMAGR1	HRS	15.1	67	68.8	13.6	0.37	1.61	M	3	7.3	71.5	18.7	1220	6	81.2	STHasStrength
MT 1841	MT 1142/H0800103L	HRS	16.2	71	70.8	14.6	0.38	1.70	MH	2	4.0	71.7	9.9	1150	7	81.4	STStrong

LINE	VARIETY / PEDIGREE	Class	Wheat Protein, % (12%mb.)	Single Kernel Hardness	Flour Yield, %	Flour Protein, % (14%mb.)	Flour Ash, %	Wheat Ash, %	Mixograph Type	Mixing Tolerance	Mixing Time, min	Mixing Water Absorption, %	Bake Mixing Time, min	Loaf Volume (cc)	Crumb Grain Score	Bake Water Absorption, %	
MT 1842	MT 1142/H0800103L	HRS	15.2	69	72.2	13.9	0.38	1.71	LM	1	3.4	69.9	6.3	1110	4	79.6	HasStrength
MT 1843	MT 1007/MT 1225	HRS	15.5	88	69.6	14.4	0.40	1.65	M	1	4.0	71.5	9.8	1060	4	81.2	LgSTIStrong
MT 1844	MT 1007/MT 1225	HRS	15.9	74	69.0	14.7	0.40	1.77	M	2	4.6	72.5	10.6	1125	5	82.2	LgSTStrong
MT 1845	MT 1142/M0 09/3-4	HRS	16.1	78	70.8	15.1	0.39	1.73	M	1	2.8	75.7	6.8	1205	4	85.4	STHasStrength
MT 1846	MT 1053/SD4265	HRS	16.1	75	72.4	15.2	0.36	1.76	MH	2	3.4	74.5	7.9	1200	6	84.2	STHasStrength
MT 1847	VIDA/MTHW1150	HRS	14.8	87	71.7	13.7	0.39	1.69	M	1	3.4	68.8	5.9	1065	4	78.5	STHasStrength
MT 1848	VIDA/MTHW1150	HRS	15.9	74	71.1	15.0	0.37	1.58	MH	3	4.4	74.7	8.8	1200	4	84.4	STIStrong
MT 1849	VIDA/MT 1203	HRS	16.2	79	70.6	14.9	0.39	1.79	M	1	1.9	68.8	3.2	1130	4	77.5	STSomeStrength
MT 1850	MT 1206/M0 09/3-4	HRS	15.6	75	71.9	14.5	0.38	1.63	M	3	3.6	68.8	5.0	1165	7	78.5	STHasStrength
MT 1851	VIDA/MT 1264	HRS	16.2	87	70.1	14.7	0.41	1.65	M	1	3.2	69.7	5.8	1160	7	79.4	STHasStrength
MT 1852	MT 1007/MT 1219	HRS	16.0	66	70.4	14.6	0.37	1.71	M	5	5.8	73.5	15.5	1310	6	83.2	LgSTBucky
MT 1853	MT 1053/MT 1273	HRS	15.0	77	73.5	13.7	0.38	1.56	M	2	4.4	71.3	8.8	1225	6	81.0	STHasStrength
MT 1854	MT 1053/M08/3-4	HRS	16.5	75	70.7	15.9	0.43	1.74	MH	2	3.0	72.2	4.7	1210	5	80.9	STHasStrength
MT 1855	MT 1053/M08/3-4	HRS	15.5	82	72.7	14.5	0.41	1.80	MH	3	5.2	74.8	11.5	1190	5	84.5	STIStrong
MT 1856	MT 1007/MT 1203	HRS	16.1	68	62.5	15.3	0.38	1.65	M	2	3.0	72.3	6.5	1220	4	82.0	HasStrength
MT 1857	MT 1142/MT 1273	HRS	15.1	82	70.7	13.7	0.39	1.60	M	4	4.5	71.5	9.5	1310	5	81.2	STHasStrength
MT 1858	MT 1206/MT 1219	HRS	15.7	70	71.2	14.6	0.39	1.75	M	2	4.3	71.7	8.9	1205	6	81.4	STStrong
MT 1859	MT 1206/MT 1219	HRS	16.7	66	70.8	15.3	0.41	1.71	MH	3	4.1	72.7	9.0	1295	6	82.4	LgSTStrong
MT 1860	MT 1206/MT 1219	HRS	16.1	71	69.7	14.8	0.42	1.68	M	1	3.3	72.5	6.7	1130	5	82.2	STHasStrength
MT 1861	MT 1142/MT 1264	HRS	15.3	68	70.0	14.2	0.39	1.66	M	4	6.0	72.0	16.2	1260	5	82.2	STIStrong
MT 1862	MT 1142/MT 1264	HRS	15.8	70	69.8	14.5	0.37	1.65	M	3	4.7	72.5	11.4	1230	5	82.2	STHasStrength
MT 1863	MT 1007/MT 1273	HRS	15.6	68	70.6	14.5	0.38	1.57	M	4	6.9	73.3	25.4	1205	6	84.0	LgSTBucky
MT 1864	VIDA/MT 1231	HRS	15.3	83	72.5	13.8	0.41	1.66	M	4	6.5	74.0	16.6	1305	7	84.2	Strong
MT 1865	VidaXConan(BC3F2)a2.1.3.6	HRS	15.0	85	73.3	13.7	0.39	1.60	M	3	5.0	73.0	12.5	1200	5	83.2	STHasStrength
MT 1866	VidaXConan(BC3F2)a4.6.8.3	HRS	15.3	92	72.3	14.2	0.39	1.69	M	3	6.0	73.4	15.6	1200	7	83.1	STIStrong
MT 1867	DuClairXConan(BC3F2)e3.10.1.3	HRS	15.9	68	67.6	14.6	0.37	1.72	LM	3	6.0	72.4	9.8	1250	5	82.1	STHasStrength
MT 1868	MT 1053/LIMAGR1	HRS	15.1	81	69.7	13.6	0.38	1.75	M	4	6.5	76.7	14.9	1330	6	87.4	LgSTBucky
MT 1869	VIDA/M0 09/3-4	HRS	15.7	84	71.1	14.6	0.39	1.59	M	1	3.5	75.7	8.0	1070	5	85.4	SISTHasStrength
MT 1870	VIDA/H0800103L	HRS	14.7	70	71.5	13.4	0.37	1.60	M	2	4.7	70.7	12.7	1145	6	80.4	STHasStrength
MT 1871	MT 1007/TRVERSE	HRS	15.1	69	71.6	13.8	0.38	1.60	M	2	4.7	73.5	11.3	1080	7	83.2	SISTHasStrength
MT 1872	MT 1007/M0 09/3-4	HRS	14.8	79	69.7	13.6	0.36	1.74	M	4	5.8	73.5	14.3	1210	5	83.2	LgSTHasStrength
MT 1873	VIDA/MT 1203	HRS	15.4	79	70.8	14.1	0.39	1.60	M	0	2.3	72.3	3.9	1025	5	80.0	STHasStrength
MT 1874	MT 1142/MT 1172	HRS	15.6	67	71.4	14.1	0.35	1.68	M	2	3.8	73.4	10.0	1080	5	83.1	STHasStrength
MT 1875	VIDA/MT 1172	HRS	14.7	72	72.5	13.5	0.36	1.66	M	1	2.4	70.5	6.3	1085	5	80.2	STHasStrength
MT 1876	MT 1007/MT 1172	HRS	15.1	68	70.2	13.5	0.38	1.69	M	3	3.5	69.8	5.2	1090	5	79.5	SISTHasStrength
CI 13596	FORTUNA	HRS	15.3	72	71.4	14.0	0.41	1.73	M	3	4.3	67.8	6.9	1180	6	77.5	STHasStrength
PI 574642	MCNEAL	HRS	15.4	86	68.3	13.8	0.39	1.81	M	5	10.5	77.4	22.4	1295	5	88.6	STBucky
ND 695	REEDER	HRS	15.5	77	70.3	14.1	0.37	1.61	M	2	3.9	72.4	9.7	1155	6	82.1	STHasStrength
PI 633974	CHOTEAU	HRS	15.7	72	70.0	14.3	0.38	1.70	M	2	4.0	72.5	8.2	1125	6	82.2	STHasStrength
PI 642366	VIDA	HRS	14.4	83	72.7	12.8	0.38	1.66	M	3	4.8	71.9	13.7	1175	5	81.6	HasStrength
	MEAN		15.7	76	70.5	14.5	0.38	1.66		3	4.4	70.6	9.9	1186	6	80.3	