

## 2018 MONTANA WINTER WHEAT INTRASTATE TEST TABLE OF CONTENTS

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## 2018 Montana Intrastate Winter Wheat Test: List of Varieties and Lines

Variety	Experimental Designation	Origin	Release Year	Pedigree
<b>Public Varieties</b>				
<b>AAC Wildfire</b>	<b>W512</b>	Alberta; SECAN	<b>2015</b>	((Norstar*5/PGR16635, AMN4LV) /6/ (RWA53, PI294994/3/ I3C//Norwin/Blizzard/4/2*AC Readymade /5/ Norstar*5/PGR16635// 2*Redwin/3/ AC Readymade) /7/ (A7257W-71-2-1/ A77695W, ID337-R1 )// CDC Kestrel, <b>L99-1236</b> /8/ <b>AC Bellatrix</b>
<b>Bearpaw</b>	<b>MTS0721</b>	Montana	<b>2011</b>	selection from a composite of 5 crosses: 99X96, DMS/Rampart// Pronghorn/3/2*Rampart; 99X97, DMS/Rampart//Pronghorn/3/ Rampart/4/(MTW9806, Redwin/Rio Blanco/NuWest) ; 99X98, DMS/Rampart//Pronghorn/3/Rampart/4/NuPlains; 99X99, DMS/Rampart//Pronghorn/3/Rampart/4/(MT9513, NuWest/5/(TAM W-103/Froid/4/Yogo/Turkey Red/3/Centurk, MT8030)); and 99X100, DMS/Rampart//Pronghorn/3/Rampart/6/(MT98113, Judith/5/ (MT8764, Crest/(VT1230, French male sterile line)/4/((PI178383/ Cheyenne//3*Tendoy, ID5011)/3/(ID5006, Norin 10/Staring// 2*Cheyenne, ID745101)))
<b>Brawl CL Plus</b>	<b>CO06052</b>	Colorado	<b>2011</b>	Teal 11A/Above//(CO99314, TX91V4931/ Halt)
<b>Byrd CL Plus</b>	<b>CO13003C</b>	Colorado	<b>2018</b>	CO06072/4*Byrd (Als1, Als2)
<b>Decade</b>	<b>MT0552</b>	Montana; North Dakota	<b>2010</b>	selection from composite of 3 crosses:((Sumner sib, KS831936-3, (Plainsman V/Odesskaya 51)//(NE86501, Colt/Cody), N95L159, Wesley sib)/3/ CDC Clair, N95L159//(MT9602, NuWest/Tiber) and N95L159/4/ (MT9609, Froid/SD1287// Redwin/3/NuWest)
<b>FourOsix</b>	<b>MT1465</b>	Montana	<b>2018</b>	selection from a composite of 5 crosses: 06X272, Yellowstone/ (MT0684, a composite - see pedigree); 06X276, Yellowstone/ (MT06102, , a composite - see pedigree); 06X278, Yellowstone/7/ (MT06110, (Arapahoe/3/Brule//Hiplains/ Newton, SD93528)/6/ (MT9409, Tiber/5/ (TAM W-103/Froid/4/Yogo/Turkey Red/ Oro/3/Centurk, MT8030)); 06X282, Yellowstone/3/(MT06123, '2174'/(MT9440, BigSky sib)//BigSky); and 06X285, Yellowstone/7/ (98X168E1, (Nuwest/4/ (MT88001, Sawmont/Tendoy /3/Yogo// Norin 10/Brevor) /5/(MT7863, Froid/Winoka/ Centurk), MTS9720)/6/(PI 191303, Alba = Belgian variety)/Elkhorn);
<b>Incline AX</b>	<b>CO14A065</b>	Colorado	<b>2017</b>	(AF28/Byrd)//(AF10/2*Byrd)
<b>Judee</b>	<b>MTS0713</b>	Montana	<b>2011</b>	(Vanguard/Norstar//Judith dwf, 93X312E14)/3/ NuHorizon
<b>Langin</b>	<b>CO11D446</b>	Colorado	<b>2016</b>	(Hatcher/(NW97S295, Antelope sib), CO050270)//Byrd
<b>Loma</b>	<b>MTS1224</b>	Montana	<b>2016</b>	Yellowstone/5/((Lew/Tiber//Redwin, MTS92045)/3/2*Erhardt, MTS0112)/4/(MTS0125, selection from a composite of 4 crosses)
<b>Northern</b>	<b>MT0978</b>	Montana	<b>2015</b>	selection from a composite of 2 crosses: 00X248, (Yellowstone sib, MT9982)/4/((MT8709, Erhardt sib)/NuWest//Erhardt, MTW0072)/3/ (NW97S151, KSSB0192-3/NE89529) and 00X249, (Judith/(PI262605, Karagach, RWA resis.)/3/(S86-740, Norstar/Plainsman V //Ulianovka) ,MTW0047)/4/MTW0072/NW97S151
<b>Oahe</b>	<b>SD10257-2</b>	South Dakota	<b>2016</b>	Ransom//3/(SD96240-3-1, (Colt*2/Chisholm, NE87513)//USSR#67)
<b>Ray</b>	<b>MTF1432</b>	Montana	<b>2018</b>	Yellowstone*2/7/(98X168E1, (Nuwest/4/(MT88001, Sawmont/ Tendoy /3/Yogo//Norin 10/Brevor) /5/(MT7863, Froid/Winoka/ Centurk), MTS9720)/6/(PI 191303, Alba = Belgian variety)/Elkhorn)
<b>Warhorse</b>	<b>MTS0808</b>	Montana	<b>2013</b>	selection from a composite of 3 crosses: 00X182, ((Froid/Winoka/7/ ((Sinvalocho/Wichita// Hope/Cheyenne /3/Wichita/4/Seu Seun 27, TX55-391-56-D8)/5/Westmont, MT6928)/6/ Trader, MT85200)/8/ Redwin, MT9908)/9/ NuPlains/6/(MTS9862, (NuWest/ Lovrin 24 /4/((Rego/Cheyenne, Sel. 39-18-7)// Winalta, MT7431)/3/(MT7115, Yogo/T. polonicum-70-5), MT91366)/5/ (MTS92137, Lew/Tiber//Redwin)); 00X183, NuPlains/MTS9862/4/ (MTW0047, Judith/(PI262605, Karagach, RWA resis.)/3/(S86-740, Norstar/ Plainsman V //Ulianovka)); and 00X184, NuPlains/MTS9862/5/(MTS0028, Vanguard/4/(Lew/Tiber//Redwin, MTSF1570)/3/ Norstar)
<b>Yellowstone</b>	<b>MT00159</b>	Montana	<b>2005</b>	F <sub>2</sub> composite of Promontory/Judith and Judith-dwarf/Promontory

## 2018 Montana Intrastate Winter Wheat Test: List of Varieties and Lines

Variety	Experimental Designation	Origin	Release Year	Pedigree
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### Private Varieties

<b>Keldin</b>	<b>ACS55017</b>	Peter Franck: Seed Link Inc.; Ontario, Canada, Westbred LLC	<b>2011</b>	Barenburg 235/Carlisle//TRX-A16-3-2
<b>LCS Chrome</b>	<b>LCH13DH-20-87</b>	Limagrain LLC	<b>2016</b>	na
<b>LCS Jet</b>	<b>NSA10-7208</b>	Limagrain Europe s.a.	<b>2015</b>	Apache/Autan
<b>LCS Link</b>	<b>LCH13-1471</b>	Limagrain LLC	<b>2017</b>	na
<b>LCS Zoom</b>	<b>LWW14-73915</b>	Limagrain LLC	<b>2018</b>	na
<b>Long Branch</b>	<b>LCH12-012, HRX1652</b>	Limagrain; Dyna-Gro Wheat	<b>2015</b>	T154 / T158
<b>name pending</b>	<b>MTF1435</b>	Montana: AgWest Seeds, Ephraim, UT; Sioux Nation Ag, Fort Pierre, SD	<b>2018</b>	(Yellowstone (Low PPO) plant seln, MT08186)/8/Yellowstone(L)*2 /7/ (98X168E1, (Nuwest/4/(MT88001, Sawmont/ Tendoy /3/Yogo//Norin 10/Brevor) /5/(MT7863, Froid/Winoka/ Centurk), MTS9720)/6/(PI 191303, Alba = Belgian variety)/Elkhorn)
<b>SY 517 CL2</b>	<b>07CL039-7</b>	Syngenta	<b>2017</b>	na, Clearfield Plus variety
<b>SY Clearstone 2CL</b>	<b>MTCL1077</b>	Syngenta, Montana	<b>2012</b>	Yellowstone*4/3/MTCL01158/CDC Teal 11A//Jagalene
<b>SY Legend CL2</b>	<b>07CL046-2</b>	Syngenta	<b>2018</b>	na
<b>SY Monument</b>	<b>04BC574-2</b>	Syngenta	<b>2014</b>	(KS89180B-2-1-1/CM75113, F1//X920750-A-11-2, BC991149-11)/3/(00x0090-4, W95091/W98-183
<b>SY Sunrise</b>	<b>06BC796#68</b>	Syngenta Seeds	<b>2015</b>	((X920709B-5-2/KS90WGR10//Ogallala, BC98337-10-53)/3/CDC Falcon, 06BC308)/4/ (NE03458, (McVey 78015/NE88521, NE95544)// W91-348/3/Millennium)
<b>SY Wolf</b>	<b>BC01007-7</b>	AgriPro, Syngenta	<b>2010</b>	((TAM-108/veery sib, SWM1524)//TX84V2029, TX91V3308)/3/(W93-359, W188-052/W96-180), W99-331)/4/(97x0906-8, (Mesa/W89-328, W96-180))//((W95-188, Karl 92/W98-232))
<b>WB4483</b>	<b>BZ9W09-2212</b>	WestBred-Monsanto:	<b>2016</b>	Pryor/Genou
<b>WB4575</b>	<b>BZ9W09-2075</b>	WestBred-Monsanto:	<b>2016</b>	(hollow stem)
<b>WB4614</b>	<b>BZ9W07-2034</b>	WestBred-Monsanto:	<b>2013</b>	BZ9W96-788-B/Pryor
<b>WB4623CLP</b>	<b>BZ9WM09-1663</b>	WestBred-Monsanto:	<b>2014</b>	(B152/Rampart, DH990356, BZ9W02-2073)// Above/CDC Teal-11A

### Public Elite Lines

	<b>MT1265</b>			Yellowstone*4//((KS96WGR40, KS93U69*2/TA 2397) (Lr41, wcm)
	<b>MTW1491</b>			(Yellowstone (Low PPO) plant seln, MT08184)//(Yellowstone (Low PPO) plant seln, MT08188/(MT08175, Colter sib)
	<b>MT1547</b>			selection from a composite of 5 crosses: 06X272, <u>Yellowstone/ (MT0684</u> , selection from a composite of 5 crosses - <b>see pedigree</b> ); and 06X276, <u>Yellowstone/(MT06102</u> , selection from a composite of 2 crosses - <b>see pedigree</b> ); 06X278, <u>Yellowstone/7/ (MT06110</u> , (Arapahoe/3/Brule//Hiplains/Newton, SD93528)/6/ (MT9409, Tiber/5/(TAM W-103/Froid/4/ Yogo//Turkey Red/Oro/3/ Centurk, MT8030)); 06X282, <u>Yellowstone/3/(MT06123</u> , "2174/ (MT9440, BigSky sib)/BigSky); and 06X285, <u>Yellowstone/7/ (98X168E1</u> , (Nuwest/4/ (MT88001, Sawmont/Tendoy /3/Yogo//Norin 10/Brevor) /5/(MT7863, Froid/Winoka/Centurk), MTS9720)/6/(PI 191303, Alba = Belgian variety)/Elkhorn)
	<b>MT1563</b>			selection from a composite of 2 crosses: 07X76, <u>Yellowstone*2/5/ (PI640431</u> , BC4F4 line derived from WA007900*5/4/WA007900// Yr5/6*Avocet/3/ WA007900//Yr15/ 6*Avocet) and 07X77, <u>Yellowstone/PI640431//Yellowstone(340.233)</u>

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	<b>MT1564</b>			selection from a composite of 2 crosses: 07X76, <u>Yellowstone</u> *2/5/ (PI640431, BC4F4 line derived from WA007900*5/4/WA007900// Yr5/6*Avocet/3/ WA007900//Yr15/ 6*Avocet) and 07X77, <u>Yellowstone/PI640431//Yellowstone(340,233)</u>
	<b>MTS1588</b>			selection from a composite of 2 crosses: 07X291, ((SMN82164/ SMN82140//Rocky/Tiber, MT9659)/3/S87-101/4/Pronghorn, <u>MT0598</u> )/5/(98X366E29-1, Heyne/Rampart/(MT9513, BigSky sib)) and 01X295, ((Lew/Tiber//Redwin ,MTS92021)/3/Judith/Arapahoe, MTS0023)/4/Pryor/ Genou, <u>01X258C1</u> )/5/ <u>MT0598</u>
	<b>MTCS1601</b>			((L'Govskaya 167/Rampart/6/(MT9409, Tiber/5/ (MT8030, TAM W-103/Froid /4/Yogo//Turkey Red /Oro/3/Centurk)) , <u>MTS0531</u> ) /13/ ( <u>MTS0532</u> , same pedigree as MTS0531) /12/ ( Morgan/5/ (88X24D247-?, (Wasatch/Yogo//Rescue/3/Tendoy, Sel. 251, MT88006)/4/Judith), <u>96X17E69</u> ) /9/((Tiber/5/(MT8030, TAM W-103/Froid /4/Yogo//Turkey Red /Oro/3/Centurk), MT9409)*2/6/IMI Fidel, <u>MTCL0309</u> )/7/ <u>CDC Teal 11A</u> /8/( <u>MTW01143</u> , Promontory/5/ (MT91366, NuWest/ Lovrin 24 /4/((Rego/ Cheyenne, Sel. 39-18-7)//Winalta, MT7431)/3/NuWest)) /10/(MTCL0510, Rampart*3/Fidel/6/ (MTS9720, Nuwest/4/(MT88001, Sawmont/Tendoy /3/Yogo//Norin 10/Brevor)/5/(MT7863, Froid/Winoka/Centurk))) /11/ ( <u>MTS0531</u> , see above)
	<b>MT1642</b>			Yellowstone/Madsen//Yellowstone
	<b>MTV1681</b>			<u>Yellowstone</u> *2/7/ <u>WillowCreek</u> /6/( <u>MT06129</u> , (KS91HW29//Rio Blanco/KS91H184, KS96HW10-3)/4/(MTW0047, Judith/ (PI262605, Karagach, RWA resis.)/3/(S86-740, Norstar/Plainsman V //Ulianovka)/5/NuSky)
	<b>MT1683</b>			selection from a composite of 2 crosses: 08X243, <u>Yellowstone(L)*2/CDC Buteo</u> and 08X245, same pedigree
	<b>MT1687</b>			selection from a composite of 2 crosses: 07X90, <u>Yellowstone(L)*2/ (OK00611W, OK Rising sib)</u> and 07X91, (TX95V9315/4/ (MT9712, Judith/Rio Blanco/3/(MT7863, Froid/Winoka// Centurk), <u>MT0692</u> )/5/ <u>Yellowstone/(OK00611W, OK Rising sib)</u> )
	<b>MT1688</b>			selection from a composite of 2 crosses: 07X90, <u>Yellowstone(L)*2/ (OK00611W, OK Rising sib)</u> and 07X91, (TX95V9315/4/ (MT9712, Judith/Rio Blanco/3/(MT7863, Froid/Winoka// Centurk), <u>MT0692</u> )/5/ <u>Yellowstone/(OK00611W, OK Rising sib)</u> )
	<b>MT1695</b>			selection from a composite of 2 crosses: 07X76, <u>Yellowstone</u> *2/5/ (PI640431, BC4F4 line derived from WA007900*5/4/ WA007900// Yr5/6*Avocet/3/ WA007900// Yr15/ 6*Avocet) and 07X77, <u>Yellowstone/PI640431//Yellowstone(340,233)</u>
	<b>MT16101</b>			selection from a composite of 2 crosses: 09X257, ( <u>Yellowstone (Low PPO) plant seln, MT08185</u> )/6/ <u>YLL</u> *2/5/(PI640431, BC4F4 line derived from WA007900*5/4/ WA007900// Yr5/6*Avocet/3/ WA007900// Yr15/ 6*Avocet)/7/ <u>Promontory/ 3*YLL// YLL</u> *2/ <u>Pelsart</u> and 09X258, <u>MT08185// YLL</u> *2/PI640431/3/ <u>YLL</u> *2/ <u>Pelsart// PROM</u> /3* <u>YLL</u>
	<b>MTF1631</b>			selection from a composite of 2 crosses: 09X164, ( <u>Yellowstone (Low PPO) plant seln .MT08184</u> )*3/8/ <u>YLL(L)*2/7/(98X168E1</u> , (Nuwest/4/ (MT88001, Sawmont/ Tendoy /3/Yogo// Norin 10/Brevor) /5/(MT7863, Froid/Winoka/ Centurk), MTS9720)/6/(PI 191303, Alba = Belgian variety)/Elkhorn) and 09X165, ( <u>Yellowstone (Low PPO) plant seln, MT08185/MT08186//YLL(L)*2/ 98X168E1</u>

**Private Elite Lines**

	<b>NSA10-2196</b>	Limagrain		na
	<b>PSB13NEDH-7-140</b>	Limagrain		Smoky Hill/McGill

**Table 1. 2018 Intrastate Winter Wheat Test : Statewide Summary**

Cultivar/Line	Pedigree	Yield bu/ac	Test weight lb/bu	Heading date Julian	Plant height in	Stem solidness (5-25)	Sawfly cutting %	Protein %
d = cultivars/lines dropped for 2019 test + = new for 2018, # = paid entry								
	Locations	9	9	8	9	5	3	9
#+	<b>07CL046-2 (SY Legend C)</b> Syngenta, 2018: now SY Legend C	70.9	<b>62.3</b>	157.8	28.5		<b>17</b>	12.6
#+	<b>AAC Wildfire</b> Alberta; (SECAN), 2015	<b>79.1</b>	61.1	164.7	33.5		<b>11</b>	12.6
d	<b>Bearpaw</b> Montana, 2011	67.5	60.9	160.5	30.1	22.6	<b>12</b>	<b>13.5</b>
	<b>Brawl CLP</b> Colorado Wheat Res. Fdn., 2011	73.5	<b>63.2</b>	154.7	28.6		<b>18</b>	13.1
#	<b>CO13003C (Byrd CL Plus)</b> Colorado, 2018: now Byrd CL Plus	<b>81.0</b>	61.4	157.0	32.1		<b>24</b>	11.7
	<b>Decade</b> Montana/North Dakota, 2010	71.4	60.9	159.2	31.4		<b>18</b>	12.9
	<b>FourOsix</b> Montana, 2018 (MT1465)	<b>77.4</b>	<b>62.0</b>	160.0	29.7		35	12.7
#+	<b>Incline AX</b> Colorado Wheat Res. Fdn., 2017	73.3	60.4	159.8	29.6		<b>20</b>	11.7
	<b>Judee</b> Montana, 2011	74.1	<b>62.5</b>	160.5	31.2	<b>23.3</b>	<b>15</b>	<b>13.3</b>
#	<b>Keldin</b> WestBred, 2011	<b>86.2</b>	<b>62.6</b>	160.9	30.9		27	12.2
#	<b>Langin</b> Colorado Wheat Res. Fdn., 2016	<b>80.0</b>	61.6	154.2	28.0		29	11.5
#	<b>LCS Chrome</b> Limagrain Cereal Seeds, 2016	72.0	<b>62.5</b>	158.1	30.6		38	13.0
#	<b>LCS Jet</b> Limagrain Cereal Seeds, 2015	<b>82.0</b>	59.5	161.9	27.5		<b>23</b>	12.4
#+ d	<b>LCS Link</b> Limagrain Cereal Seeds, 2017	75.7	<b>62.7</b>	156.8	28.7		<b>24</b>	12.6
	<b>Loma</b> Montana, 2016	<b>78.2</b>	61.0	163.3	29.2	22.3	<b>11</b>	12.9
#	<b>Long Branch</b> Dyna-Gro Wheat, 2015	<b>79.4</b>	<b>62.4</b>	154.9	27.9		25	11.7
#+	<b>LWW14-73915 (LCS Zoom)</b> Limagrain, 2018: now LCS Zoom	<b>81.4</b>	58.7	158.2	28.1		42	12.3
d	<b>MT1265</b> Yellowstone*4/KS96WGRC40 (Lr4	<b>82.2</b>	61.3	163.5	33.1		35	12.5
d	<b>MT1547</b> Yellowstone/MT0684	<b>79.9</b>	<b>62.0</b>	160.4	30.4		39	12.6
d	<b>MT1563</b> Yellowstone*2/PI640431	<b>79.5</b>	61.1	162.4	32.8		33	12.2
	<b>MT1564</b> Yellowstone*2/PI640431	<b>77.1</b>	<b>62.5</b>	156.6	30.1		34	12.5
+ d	<b>MT16101</b> MT08185/YLL*2/PI640431/3/Prorr	75.2	<b>62.1</b>	158.8	31.5		31	12.9
+ d	<b>MT1642</b> Yellowstone/Madsen//Yellowstone	<b>81.6</b>	60.1	164.6	32.1		<b>21</b>	12.9
+ d	<b>MT1683</b> Yellowstone(L)*2/CDC Buteo	<b>83.0</b>	61.3	161.9	32.8		42	12.5
+ d	<b>MT1687</b> Yellowstone(L)*2/(OK00611W, OK	76.4	<b>62.3</b>	158.0	29.8		34	13.2
+ d	<b>MT1688</b> Yellowstone(L)*2/(OK00611W, OK	74.9	61.8	157.5	29.3		34	13.1
+ d	<b>MT1695</b> Yellowstone*2/PI640431	70.8	61.7	157.7	29.6		38	12.6
+ d	<b>MTCS1601</b> MTS0531/7/MTS0532/6/96X17E6	76.3	<b>62.3</b>	160.7	31.0	20.7	<b>18</b>	12.8
d	<b>MTF1435</b> MT08186//Yellowstone(L)*2/98X16	68.5	60.4	163.5	38.3		<b>23</b>	12.7
+ d	<b>MTF1631</b> MT08184*3//YLL(L)*2/98X168E1	75.4	61.0	162.4	37.2		28	13.0
	<b>MTS1588</b> MT0598/98X366E29-1	<b>78.1</b>	<b>62.3</b>	162.0	28.3	<b>24.2</b>	<b>2</b>	12.7
+ d	<b>MTV1681</b> Yellowstone*2//WillowCreek/MT06	76.8	60.6	160.9	31.1		29	12.9
	<b>MTW1491</b> MT08189//MT08187/(MTW08166,	<b>79.9</b>	61.8	161.8	32.2		36	12.3
	<b>Northern</b> Montana, 2015	<b>78.9</b>	61.5	162.9	31.0		<b>21</b>	12.8
#+ d	<b>NSA10-2196</b> Limagrain Cereal Seeds exp. line	75.2	59.0	160.3	28.1		42	12.1
+ d	<b>Oahe</b> South Dakota, 2016	<b>78.5</b>	<b>62.9</b>	157.3	33.1		30	12.6
# d	<b>PSB13NEDH-7-140</b> Limagrain Cereal Seeds exp. line	75.3	<b>62.6</b>	158.6	32.1		27	<b>13.4</b>
	<b>Ray</b> Montana, 2018 (MTF1432)	<b>79.0</b>	59.2	164.9	35.9		27	12.7
#	<b>SY 517 CL2</b> Syngenta (AgriPro), 2017	69.7	<b>62.5</b>	155.0	28.6		<b>18</b>	12.5
#	<b>SY Clearstone 2CL</b> Montana/Syngenta, 2012	<b>79.0</b>	60.8	162.8	34.0		39	12.6
#	<b>SY Monument</b> Syngenta (AgriPro), 2015	<b>81.9</b>	61.2	158.4	29.1		31	11.9
#	<b>SY Sunrise</b> Syngenta (AgriPro), 2015	76.6	<b>62.7</b>	157.3	26.0		<b>23</b>	12.1
d	<b>SY Wolf</b> Syngenta (AgriPro), 2010	74.4	<b>62.5</b>	156.9	28.1		<b>10</b>	12.7
	<b>Warhorse</b> Montana, 2013	75.2	61.8	161.9	29.8	22.7	<b>1</b>	<b>13.4</b>
# d	<b>WB4483</b> WestBred, 2016	72.8	61.2	162.9	30.1	19.3	<b>15</b>	13.0
# d	<b>WB4575</b> WestBred, 2016	72.5	<b>62.6</b>	160.6	29.1		<b>15</b>	13.1
# d	<b>WB4614</b> WestBred, 2013	76.1	<b>62.1</b>	161.1	29.5		<b>19</b>	12.5
# d	<b>WB4623CLP</b> WestBred, 2015	71.2	<b>62.0</b>	161.4	29.1		<b>21</b>	<b>13.7</b>
	<b>Yellowstone</b> Montana 2005	<b>78.1</b>	60.9	162.7	32.6	6.0	40	12.5
<b>Average</b>		<b>76.6</b>	<b>61.6</b>	<b>160.0</b>	<b>30.6</b>	<b>20.1</b>	<b>25.4</b>	<b>12.6</b>
<b>LSD (0.05)</b>		<b>9.3</b>	<b>1.1</b>	<b>1.1</b>	<b>1.4</b>	<b>1.5</b>	<b>22.6</b>	<b>0.5</b>
<b>C. V. (%)</b>		<b>13.0</b>	<b>1.9</b>	<b>0.7</b>	<b>4.9</b>	<b>5.6</b>	<b>54.9</b>	<b>4.2</b>

**bold** = indicates highest value within a column

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

**Table 2. 2018 Intrastate Winter Wheat Test (Exp. 3501): Bozeman**

Entry	Cultivar/Line	Pedigree	Yield bu/ac	Test weight lb/bu	Heading date Julian	Plant height in	Protein %
	d = cultivars/lines dropped for 2019 test + = new for 2018, # = paid entry		LAT	LAT	LAT	RCB	Bulk
		lattice efficiency relative to RCB	137%	105%	109%		
<b>32</b>	<b>MTW1491</b>	MT08189//MT08187/(MTW08166,	<b>150.2</b>	64.3	167.3	40.0	11.9
<b>7</b>	<b>Northern</b>	Montana, 2015	<b>147.8</b>	63.8	167.3	38.2	12.1
<b>26</b>	d <b>MT1265</b>	Yellowstone*4/KS96WGRC40 (Lr4	<b>146.6</b>	63.3	168.2	40.1	12.2
<b>21</b>	# <b>LCS Jet</b>	Limagrain Cereal Seeds, 2015	<b>145.4</b>	62.3	165.7	32.1	11.9
<b>41</b>	+ d <b>MTV1681</b>	Yellowstone*2//WillowCreek/MT06	<b>145.2</b>	63.5	165.9	38.5	12.6
<b>13</b>	# <b>Keldin</b>	WestBred, 2011	<b>144.6</b>	64.6	165.4	35.0	12.1
<b>36</b>	d <b>MT1563</b>	Yellowstone*2/PI640431	<b>142.6</b>	63.9	167.3	40.1	12.1
<b>6</b>	<b>SY Clearstone 2CL</b>	Montana/Syngenta, 2012	<b>142.4</b>	63.3	167.2	40.2	12.3
<b>42</b>	+ <b>MT1683</b>	Yellowstone(L)*2/CDC Buteo	<b>141.6</b>	63.7	166.5	39.4	12.2
<b>28</b>	# <b>Langin</b>	Colorado Wheat Res. Fdn., 2016	<b>140.3</b>	63.7	158.9	33.6	11.1
<b>40</b>	+ <b>MT1642</b>	Yellowstone/Madsen//Yellowstone	<b>140.3</b>	63.5	170.4	37.1	12.1
<b>23</b>	#+ <b>LWW14-73915 (LCS Zoom)</b>	Limagrain, 2018: now LCS Zoom	<b>139.9</b>	61.9	162.2	32.2	11.8
<b>25</b>	<b>Loma</b>	Montana, 2016	<b>139.7</b>	63.8	168.4	35.1	12.0
<b>33</b>	<b>Ray</b>	Montana, 2018 (MTF1432)	138.5	61.7	170.8	43.6	12.5
<b>22</b>	#+ d <b>NSA10-2196</b>	Limagrain Cereal Seeds exp. line	138.4	61.4	162.9	34.1	11.1
<b>1</b>	<b>Yellowstone</b>	Montana 2005	137.3	63.8	167.3	39.0	11.9
<b>9</b>	# <b>SY Monument</b>	Syngenta (AgriPro), 2015	136.7	63.6	162.0	34.6	11.8
<b>17</b>	# d <b>WB4614</b>	WestBred, 2013	135.6	<b>65.5</b>	166.3	35.0	11.8
<b>29</b>	# <b>CO13003C (Byrd CL Plus)</b>	Colorado, 2018: now Byrd CL Plus	135.5	64.4	162.7	36.9	11.2
<b>30</b>	#+ <b>AAC Wildfire</b>	Alberta; (SECAN), 2015	135.3	63.9	170.6	39.3	12.4
<b>39</b>	+ <b>MTCS1601</b>	MTS05317/MTS0532/6/96X17E6	135.3	64.6	165.9	37.4	12.7
<b>24</b>	# <b>Long Branch</b>	Dyna-Gro Wheat, 2015	134.8	64.4	157.8	34.1	12.0
<b>38</b>	<b>MTS1588</b>	MT0598/98X366E29-1	134.5	64.9	167.3	33.4	12.0
<b>20</b>	#+ d <b>LCS Link</b>	Limagrain Cereal Seeds, 2017	134.5	<b>65.2</b>	161.4	34.0	12.5
<b>31</b>	<b>FourOsix</b>	Montana, 2018 (MT1465)	134.4	64.4	165.6	33.6	11.9
<b>15</b>	# d <b>WB4483</b>	WestBred, 2016	133.2	64.8	168.2	36.1	11.6
<b>35</b>	d <b>MT1547</b>	Yellowstone/MT0684	132.9	64.6	165.3	35.3	12.2
<b>45</b>	+ d <b>MT1695</b>	Yellowstone*2/PI640431	132.5	64.2	162.1	37.2	11.9
<b>27</b>	#+ <b>Incline AX</b>	Colorado Wheat Res. Fdn., 2017	131.5	63.2	164.8	35.8	11.2
<b>46</b>	+ d <b>MT16101</b>	MT08185//YLL*2/PI640431/3/Pror	131.0	64.2	163.5	37.4	12.5
<b>37</b>	<b>MT1564</b>	Yellowstone*2/PI640431	130.5	64.7	161.7	36.1	12.1
<b>5</b>	<b>Decade</b>	Montana/North Dakota, 2010	129.3	64.2	164.7	38.0	12.5
<b>2</b>	<b>Judee</b>	Montana, 2011	128.2	<b>65.1</b>	165.9	37.0	12.2
<b>44</b>	+ d <b>MT1688</b>	Yellowstone(L)*2/(OK00611W, OK	128.0	64.6	162.2	34.5	13.6
<b>14</b>	# d <b>WB4623CLP</b>	WestBred, 2015	127.5	64.0	165.6	35.0	13.7
<b>19</b>	# d <b>PSB13NEDH-7-140</b>	Limagrain Cereal Seeds exp. line	124.7	65.0	165.0	39.0	13.7
<b>43</b>	+ d <b>MT1687</b>	Yellowstone(L)*2/(OK00611W, OK	124.3	64.6	162.9	35.2	13.5
<b>47</b>	+ d <b>MTF1631</b>	MT08184*3//YLL(L)*2/98X168E1	122.6	63.3	168.1	45.0	13.2
<b>48</b>	+ <b>Oahe</b>	South Dakota, 2016	120.7	65.1	163.0	40.4	12.9
<b>3</b>	<b>Warhorse</b>	Montana, 2013	120.7	63.8	167.3	36.4	13.0
<b>34</b>	d <b>MTF1435</b>	MT08186//Yellowstone(L)*2/98X16	117.8	62.7	168.0	45.3	12.6
<b>8</b>	d <b>SY Wolf</b>	Syngenta (AgriPro), 2010	117.2	64.9	161.7	34.0	12.5
<b>12</b>	#+ <b>07CL046-2 (SY Legend C)</b>	Syngenta, 2018: now SY Legend C	117.1	64.8	163.4	33.7	12.0
<b>16</b>	# d <b>WB4575</b>	WestBred, 2016	116.9	65.1	166.8	35.9	12.5
<b>49</b>	d <b>Bearpaw</b>	Montana, 2011	116.1	64.8	165.2	36.9	12.6
<b>18</b>	# <b>LCS Chrome</b>	Limagrain Cereal Seeds, 2016	115.7	64.4	162.0	36.6	13.2
<b>4</b>	<b>Brawl CLP</b>	Colorado Wheat Res. Fdn., 2011	115.3	<b>65.3</b>	159.1	33.5	13.5
<b>10</b>	# <b>SY Sunrise</b>	Syngenta (AgriPro), 2015	114.6	<b>65.2</b>	162.1	30.5	12.8
<b>11</b>	# <b>SY 517 CL2</b>	Syngenta (AgriPro), 2017	113.7	<b>65.2</b>	159.6	33.1	12.6
	<b>Average</b>		<b>131.8</b>	<b>64.1</b>	<b>164.9</b>	<b>36.6</b>	<b>12.3</b>
	<b>LSD (0.05)</b>		<b>11.6</b>	<b>0.4</b>	<b>1.1</b>	<b>1.4</b>	
	<b>C. V. (%)</b>		<b>5.0</b>	<b>0.4</b>	<b>0.4</b>	<b>2.2</b>	
	<b>P-value (Varieties)</b>		<b>&lt;.0001</b>	<b>0.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	

**bold** = indicates highest value within a column

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

**Table 3. 2018 Intrastate Winter Wheat Test (Exp. 3502): Havre**

Entry	Cultivar/Line	Pedigree	Yield bu/ac	Test weight lb/bu	Stand %	Heading date Julian	Plant height in	Sawfly cutting %	Protein %
	d = cultivars/lines dropped for 2019 test + = new for 2018, # = paid entry		LAT	LAT	LAT	RCB	RCB	LAT	LAT
		lattice efficiency relative to RCB	124%	121%	106%			130%	110%
30 #+	<b>AAC Wildfire</b>	Alberta; (SECAN), 2015	<b>72.5</b>	62.2	98.5	163.0	25.3	<b>6</b>	13.8
13 #	<b>Keldin</b>	WestBred, 2011	<b>68.6</b>	63.1	97.7	159.4	25.4	7	13.7
24 #	<b>Long Branch</b>	Dyna-Gro Wheat, 2015	64.6	63.2	97.6	154.3	23.6	<b>4</b>	12.2
27 #+	<b>Incline AX</b>	Colorado Wheat Res. Fdn., 2017	63.7	62.6	97.4	157.7	25.0	<b>3</b>	12.5
38	<b>MTS1588</b>	MT0598/98X366E29-1	62.7	62.7	93.5	160.0	22.2	<b>2</b>	14.3
28 #	<b>Langin</b>	Colorado Wheat Res. Fdn., 2016	62.3	63.2	94.8	153.6	22.4	<b>2</b>	12.9
1	<b>Yellowstone</b>	Montana 2005	61.9	61.7	97.8	161.0	26.8	8	14.2
6	<b>SY Clearstone 2CL</b>	Montana/Syngenta, 2012	61.8	61.4	93.5	160.7	27.5	11	14.3
16 # d	<b>WB4575</b>	WestBred, 2016	61.7	<b>64.3</b>	95.5	158.6	23.3	<b>2</b>	14.6
41 + d	<b>MTV1681</b>	Yellowstone*2//WillowCreek/MT06	61.7	62.1	96.7	158.7	25.6	<b>4</b>	14.1
42 +	<b>MT1683</b>	Yellowstone(L)*2/CDC Buteo	61.5	61.4	93.6	159.7	26.2	8	14.6
15 # d	<b>WB4483</b>	WestBred, 2016	61.2	63.0	95.9	161.7	24.2	<b>3</b>	14.8
37	<b>MT1564</b>	Yellowstone*2/PI640431	61.2	63.6	98.1	156.0	26.9	<b>2</b>	13.8
36 d	<b>MT1563</b>	Yellowstone*2/PI640431	61.0	62.0	99.2	161.0	25.8	9	14.0
10 #	<b>SY Sunrise</b>	Syngenta (AgriPro), 2015	61.0	63.8	94.6	156.6	21.3	<b>3</b>	12.8
33	<b>Ray</b>	Montana, 2018 (MTF1432)	60.6	59.8	99.6	162.7	29.9	15	14.3
25	<b>Loma</b>	Montana, 2016	60.5	62.6	97.1	162.6	23.4	<b>4</b>	14.4
32	<b>MTW1491</b>	MT08189//MT08187/(MTW08166,	60.5	62.4	95.0	159.7	25.9	11	14.0
31	<b>FourOsix</b>	Montana, 2018 (MT1465)	60.3	62.6	94.1	158.0	25.1	<b>4</b>	14.9
40 +	<b>MT1642</b>	Yellowstone/Madsen//Yellowstone	60.1	60.6	97.4	164.4	27.2	13	15.3
44 + d	<b>MT1688</b>	Yellowstone(L)*2/(OK00611W, OK	60.0	63.2	98.1	156.0	26.2	7	14.4
8 d	<b>SY Wolf</b>	Syngenta (AgriPro), 2010	59.7	63.4	96.3	155.7	23.8	<b>4</b>	14.2
21 #	<b>LCS Jet</b>	Limagrain Cereal Seeds, 2015	59.5	60.7	96.4	160.4	21.8	<b>5</b>	13.8
35 d	<b>MT1547</b>	Yellowstone/MT0684	59.4	62.7	98.5	158.6	25.9	<b>4</b>	14.1
9 #	<b>SY Monument</b>	Syngenta (AgriPro), 2015	59.3	62.4	91.1	158.0	24.2	<b>3</b>	13.0
29 #	<b>CO13003C (Byrd CL Plus)</b>	Colorado, 2018: now Byrd CL Plus	58.8	63.4	93.0	154.9	25.0	<b>4</b>	12.6
43 + d	<b>MT1687</b>	Yellowstone(L)*2/(OK00611W, OK	58.7	63.1	96.9	156.0	26.4	9	14.4
26 d	<b>MT1265</b>	Yellowstone*4/KS96WGRC40 (Lr4	58.0	61.7	89.8	162.3	23.5	13	14.5
49 d	<b>Bearpaw</b>	Montana, 2011	57.9	62.8	94.3	160.0	21.7	<b>2</b>	14.9
4	<b>Brawl CLP</b>	Colorado Wheat Res. Fdn., 2011	57.6	<b>64.3</b>	97.3	153.7	27.2	7	14.0
47 + d	<b>MTF1631</b>	MT08184*3//YLL(L)*2/98X168E1	57.5	62.0	97.8	160.3	29.1	8	14.4
3	<b>Warhorse</b>	Montana, 2013	57.0	62.5	98.9	159.9	23.3	<b>0</b>	14.9
17 # d	<b>WB4614</b>	WestBred, 2013	56.9	62.9	93.7	160.7	23.7	7	14.7
45 + d	<b>MT1695</b>	Yellowstone*2/PI640431	56.5	62.6	95.4	156.1	26.5	<b>6</b>	13.9
7	<b>Northern</b>	Montana, 2015	56.5	62.3	97.1	160.0	24.3	<b>4</b>	14.2
22 #+ d	<b>NSA10-2196</b>	Limagrain Cereal Seeds exp. line	56.2	60.5	91.6	159.0	23.7	8	13.3
46 + d	<b>MT16101</b>	MT08185//YLL*2/PI640431/3/Prorr	55.8	62.5	96.6	156.0	26.0	<b>2</b>	14.5
2	<b>Judee</b>	Montana, 2011	55.7	63.6	99.9	158.9	24.6	<b>5</b>	<b>15.5</b>
39 +	<b>MTCS1601</b>	MTS0531/7/MTS0532/6/96X17E69	55.5	62.9	96.8	159.3	25.1	<b>4</b>	14.7
34 d	<b>MTF1435</b>	MT08186//Yellowstone(L)*2/98X16	55.0	60.6	96.6	161.4	32.1	7	14.2
12 #+	<b>07CL046-2 (SY Legend CL2)</b>	Syngenta, 2018: now SY Legend C	55.0	63.2	93.6	156.0	24.7	7	14.0
18 #	<b>LCS Chrome</b>	Limagrain Cereal Seeds, 2016	54.5	63.0	90.1	158.6	23.5	8	14.6
23 #+	<b>LWW14-73915 (LCS Zoom)</b>	Limagrain, 2018: now LCS Zoom	53.8	60.9	94.9	156.3	23.2	7	13.8
5	<b>Decade</b>	Montana/North Dakota, 2010	53.6	62.6	94.9	158.4	25.8	<b>4</b>	14.7
14 # d	<b>WB4623CLP</b>	WestBred, 2015	52.7	62.1	95.1	160.0	22.7	7	14.8
11 #	<b>SY 517 CL2</b>	Syngenta (AgriPro), 2017	51.3	<b>64.1</b>	97.6	154.6	25.2	<b>2</b>	14.1
20 #+ d	<b>LCS Link</b>	Limagrain Cereal Seeds, 2017	49.5	63.4	90.1	156.7	24.3	7	14.9
48 +	<b>Oahe</b>	South Dakota, 2016	49.2	63.4	100.3	155.4	26.8	<b>3</b>	14.3
19 # d	<b>PSB13NEDH-7-140</b>	Limagrain Cereal Seeds exp. line	48.9	62.2	95.9	156.7	26.0	<b>5</b>	<b>16.1</b>
	<b>Average</b>		<b>58.6</b>	<b>62.5</b>	<b>95.8</b>	<b>158.6</b>	<b>25.1</b>	<b>5.7</b>	<b>14.2</b>
	<b>LSD (0.05)</b>		<b>7.3</b>	<b>0.4</b>	<b>ns</b>	<b>1.6</b>	<b>2.2</b>	<b>5.7</b>	<b>0.7</b>
	<b>C. V. (%)</b>		<b>7.1</b>	<b>0.4</b>	<b>4.5</b>	<b>0.6</b>	<b>5.3</b>	<b>6.4</b>	<b>2.7</b>
	<b>P-value (Varieties)</b>		<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>0.5383</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>0.0036</b>	<b>&lt;.0001</b>

**bold** = indicates highest value within a column

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

**Table 4. 2018 Intrastate Winter Wheat Test (Exp. 3503): Sidney (2 rep data, except for winter survival)**

Entry	Cultivar/Line	Pedigree	Yield bu/ac	Test weight lb/bu	Winter survival %	Heading date Julian	Plant height in	Protein %
	d = cultivars/lines dropped for 2019 test + = new for 2018, # = paid entry		RCB	RCB	21-May	RCB	RCB	RCB
		lattice efficiency relative to RCB			121%			
13 #	<b>Keldin</b>	WestBred, 2011	<b>92.1</b>	<b>64.1</b>	<b>57</b>	160.0	29.1	10.2
7	<b>Northern</b>	Montana, 2015	<b>83.7</b>	63.2	49	161.5	27.8	11.1
26 d	<b>MT1265</b>	Yellowstone*4/KS96WGRC40 (Lr	<b>82.9</b>	62.8	52	162.0	30.3	10.9
42 +	<b>MT1683</b>	Yellowstone(L)*2/CDC Buteo	<b>82.0</b>	62.1	53	162.0	29.5	10.8
16 # d	<b>WB4575</b>	WestBred, 2016	<b>80.5</b>	<b>64.8</b>	<b>57</b>	159.0	26.6	12.0
9 #	<b>SY Monument</b>	Syngenta (AgriPro), 2015	<b>80.2</b>	61.8	<b>60</b>	158.5	25.2	9.6
19 # d	<b>PSB13NEDH-7-140</b>	Limagrain Cereal Seeds exp. line	<b>79.9</b>	<b>65.0</b>	54	158.0	30.1	11.6
29 #	<b>CO13003C (Byrd CL Plus)</b>	Colorado, 2018: now Byrd CL Plus	77.3	62.6	<b>59</b>	158.0	27.8	9.8
18 #	<b>LCS Chrome</b>	Limagrain Cereal Seeds, 2016	76.6	<b>64.2</b>	44	157.5	27.8	11.4
35 d	<b>MT1547</b>	Yellowstone/MT0684	76.0	62.3	55	160.0	27.6	10.5
41 + d	<b>MTV1681</b>	Yellowstone*2/WillowCreek/MT06	74.8	62.3	<b>57</b>	160.0	27.8	11.1
48 +	<b>Oahe</b>	South Dakota, 2016	74.2	<b>64.4</b>	54	157.0	28.1	11.4
47 + d	<b>MTF1631</b>	MT08184*3/YLL(L)*2/98X168E1	73.8	62.4	53	161.0	33.5	11.5
5	<b>Decade</b>	Montana/North Dakota, 2010	73.4	62.5	<b>69</b>	157.5	25.8	10.9
49 d	<b>Bearpaw</b>	Montana, 2011	72.9	63.2	45	162.0	26.4	11.7
32	<b>MTW1491</b>	MT08189/MT08187/(MTW08166,	72.9	62.9	56	161.0	27.6	11.0
1	<b>Yellowstone</b>	Montana 2005	72.7	62.1	<b>62</b>	162.0	28.3	10.4
15 # d	<b>WB4483</b>	WestBred, 2016	72.3	61.7	51	162.0	28.0	12.2
25	<b>Loma</b>	Montana, 2016	72.0	61.8	46	162.5	26.6	12.1
33	<b>Ray</b>	Montana, 2018 (MTF1432)	71.9	60.5	44	162.5	32.1	11.0
8 d	<b>SY Wolf</b>	Syngenta (AgriPro), 2010	70.9	<b>64.9</b>	51	157.0	25.4	10.6
10 #	<b>SY Sunrise</b>	Syngenta (AgriPro), 2015	70.8	<b>63.5</b>	55	157.0	24.0	10.6
30 #+	<b>AAC Wildfire</b>	Alberta; (SECAN), 2015	70.3	61.8	<b>65</b>	162.5	29.1	10.5
43 + d	<b>MT1687</b>	Yellowstone(L)*2/(OK00611W, Ok	69.8	62.3	<b>57</b>	156.5	26.0	11.5
39 +	<b>MTCS1601</b>	MTS0531/7/MTS0532/6/96X17E6	69.8	<b>64.6</b>	<b>61</b>	160.0	27.8	9.5
3	<b>Warhorse</b>	Montana, 2013	69.1	62.5	52	162.0	27.2	11.8
27 #+	<b>Incline AX</b>	Colorado Wheat Res. Fdn., 2017	68.9	62.7	30	160.0	25.0	10.8
28 #	<b>Langin</b>	Colorado Wheat Res. Fdn., 2016	68.7	<b>63.4</b>	<b>59</b>	155.0	25.8	9.6
24 #	<b>Long Branch</b>	Dyna-Gro Wheat, 2015	68.4	62.3	50	156.5	24.0	10.3
31	<b>FourOsix</b>	Montana, 2018 (MT1465)	68.0	62.5	48	160.0	26.6	10.7
44 + d	<b>MT1688</b>	Yellowstone(L)*2/(OK00611W, Ok	67.5	61.9	<b>57</b>	157.0	27.8	11.0
2	<b>Judee</b>	Montana, 2011	66.7	<b>63.8</b>	49	160.0	27.6	11.8
17 # d	<b>WB4614</b>	WestBred, 2013	66.0	<b>63.6</b>	53	161.0	23.4	10.1
6	<b>SY Clearstone 2CL</b>	Montana/Syngenta, 2012	65.1	61.3	48	162.5	30.1	11.5
38	<b>MTS1588</b>	MT0598/98X366E29-1	64.3	<b>64.0</b>	52	162.0	24.2	10.8
40 +	<b>MT1642</b>	Yellowstone/Madsen//Yellowstone	63.4	61.5	39	163.0	29.7	12.0
12 #+	<b>07CL046-2 (SY Legend CL2)</b>	Syngenta, 2018: now SY Legend C	63.1	62.8	34	159.5	26.0	11.6
20 #+ d	<b>LCS Link</b>	Limagrain Cereal Seeds, 2017	61.8	<b>64.2</b>	54	156.5	25.8	11.1
4	<b>Brawl CLP</b>	Colorado Wheat Res. Fdn., 2011	60.7	<b>64.4</b>	45	156.0	24.2	12.2
36 d	<b>MT1563</b>	Yellowstone*2/PI640431	60.6	62.5	<b>61</b>	160.0	26.6	9.2
11 #	<b>SY 517 CL2</b>	Syngenta (AgriPro), 2017	60.3	<b>64.2</b>	39	155.5	25.0	11.0
37	<b>MT1564</b>	Yellowstone*2/PI640431	57.2	<b>63.9</b>	44	157.0	24.6	10.6
34 d	<b>MTF1435</b>	MT08186//Yellowstone(L)*2/98X1(	51.2	60.5	45	162.5	31.3	10.8
45 + d	<b>MT1695</b>	Yellowstone*2/PI640431	47.3	62.3	25	159.5	24.8	12.2
23 #+	<b>LWW14-73915 (LCS Zoom)</b>	Limagrain, 2018: now LCS Zoom	45.5	54.8	18	160.0	23.8	12.4
46 + d	<b>MT16101</b>	MT08185//YLL*2/PI640431/3/Pron	44.9	62.5	21	162.0	27.8	12.6
21 #	<b>LCS Jet</b>	Limagrain Cereal Seeds, 2015	42.2	57.0	14	163.0	21.7	<b>12.8</b>
14 # d	<b>WB4623CLP</b>	WestBred, 2015	41.7	61.4	12	164.5	22.6	<b>14.2</b>
22 #+ d	<b>NSA10-2196</b>	Limagrain Cereal Seeds exp. line	10.9	.	0	162.0	22.8	12.6
	<b>Average</b>		<b>66.9</b>	<b>62.6</b>	<b>47.3</b>	<b>159.9</b>	<b>26.9</b>	<b>11.2</b>
	<b>LSD (0.05)</b>		<b>13.4</b>	<b>1.7</b>	<b>12.4</b>	<b>2.6</b>	<b>3.2</b>	<b>1.5</b>
	<b>C. V. (%)</b>		<b>10.0</b>	<b>1.4</b>	<b>15.1</b>	<b>0.8</b>	<b>5.9</b>	<b>6.8</b>
	<b>P-value (Varieties)</b>		<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>

**bold** = indicates highest value within a column

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



**Table 5. 2018 Intrastate Winter Wheat Test (Exp. 3504): Williston, ND**

Entry #	Cultivar/Line	Pedigree	Yield bu/ac	Test weight lb/bu	Heading date Julian	Plant height in	Protein %
	d = cultivars/lines dropped for 2019 test		RCB	RCB	RCB	RCB	LAT
	+ = new for 2018, # = paid entry						
		lattice efficiency relative to RCB					118%
30 #+	AAC Wildfire	Alberta; (SECAN), 2015	<b>55.1</b>	<b>61.0</b>	159.7	22.9	13.8
36 d	MT1563	Yellowstone*2/PI640431	<b>53.1</b>	60.5	157.0	25.5	13.0
40 +	MT1642	Yellowstone/Madsen//Yellowstone	<b>50.8</b>	59.4	159.6	23.9	14.0
42 +	MT1683	Yellowstone(L)*2/CDC Buteo	48.7	59.8	156.3	24.4	13.3
26 d	MT1265	Yellowstone*4/KS96WGRC40 (Lr	48.7	60.4	157.0	25.2	14.0
47 + d	MTF1631	MT08184*3//YLL(L)*2/98X168E1	47.7	60.5	157.0	27.9	14.0
32	MTW1491	MT08189//MT08187//MTW08166,	47.7	60.4	156.7	22.9	13.2
38	MTS1588	MT0598/98X366E29-1	47.0	59.6	156.7	22.4	<b>14.4</b>
1	Yellowstone	Montana 2005	46.9	60.0	157.0	26.4	13.8
35 d	MT1547	Yellowstone/MT0684	46.8	60.0	154.9	22.8	14.0
31	FourOsix	Montana, 2018 (MT1465)	46.8	60.1	155.0	21.8	13.9
25	Loma	Montana, 2016	46.6	59.7	157.7	21.4	13.9
41 + d	MTV1681	Yellowstone*2//WillowCreek/MT06	46.6	59.5	155.3	23.5	14.0
6	SY Clearstone 2CL	Montana/Syngenta, 2012	45.5	59.6	156.9	25.6	13.9
7	Northern	Montana, 2015	45.4	60.6	157.1	21.5	14.2
13 #	Keldin	WestBred, 2011	45.3	60.7	155.9	23.9	12.8
3	Warhorse	Montana, 2013	45.2	60.0	157.4	24.1	<b>14.4</b>
22 #+ d	NSA10-2196	Limagrain Cereal Seeds exp. line	45.2	56.8	156.7	21.3	12.5
43 + d	MT1687	Yellowstone(L)*2/(OK00611W, Ok	45.1	60.0	154.3	24.4	13.9
17 # d	WB4614	WestBred, 2013	44.6	60.1	157.0	23.2	14.2
37	MT1564	Yellowstone*2/PI640431	44.5	60.1	152.3	23.5	13.4
5	Decade	Montana/North Dakota, 2010	44.3	59.7	154.0	24.0	14.0
2	Judee	Montana, 2011	43.9	<b>61.2</b>	155.4	23.9	<b>14.3</b>
23 #+	LWW14-73915 (LCS Zoom)	Limagrain, 2018: now LCS Zoom	43.9	56.2	154.2	21.8	13.3
46 + d	MT16101	MT08185//YLL*2/PI640431/3/Pror	43.9	60.4	153.4	23.5	14.1
8 d	SY Wolf	Syngenta (AgriPro), 2010	43.8	<b>61.4</b>	152.4	21.6	13.5
15 # d	WB4483	WestBred, 2016	43.8	58.8	157.7	21.4	<b>14.6</b>
19 # d	PSB13NEDH-7-140	Limagrain Cereal Seeds exp. line	43.5	<b>61.1</b>	152.7	25.6	<b>14.7</b>
29 #	CO13003C (Byrd CL Plus)	Colorado, 2018: now Byrd CL Plus	43.4	59.8	152.1	25.6	12.5
21 #	LCS Jet	Limagrain Cereal Seeds, 2015	43.0	58.1	156.7	20.5	13.5
39 +	MTCS1601	MTS05317//MTS0532/6/96X17E6	42.9	59.3	156.0	24.0	14.1
16 # d	WB4575	WestBred, 2016	42.7	<b>61.1</b>	155.1	23.1	14.3
27 #+	Incline AX	Colorado Wheat Res. Fdn., 2017	42.7	59.8	155.7	22.9	12.8
48 +	Oahe	South Dakota, 2016	42.5	60.5	152.8	24.4	13.0
9 #	SY Monument	Syngenta (AgriPro), 2015	42.2	58.7	154.3	22.3	12.4
49 d	Bearpaw	Montana, 2011	42.0	58.7	154.8	21.0	<b>14.6</b>
20 #+ d	LCS Link	Limagrain Cereal Seeds, 2017	41.6	60.6	153.8	23.3	13.4
33	Ray	Montana, 2018 (MTF1432)	41.6	57.8	159.3	24.7	13.9
34 d	MTF1435	MT08186//Yellowstone(L)*2/98X16	41.1	60.0	157.7	27.7	13.4
44 + d	MT1688	Yellowstone(L)*2/(OK00611W, Ok	41.1	59.2	154.2	23.4	13.7
14 # d	WB4623CLP	WestBred, 2015	41.0	60.5	156.3	22.9	<b>14.8</b>
45 + d	MT1695	Yellowstone*2/PI640431	40.6	59.9	152.6	23.5	13.1
10 #	SY Sunrise	Syngenta (AgriPro), 2015	40.0	59.7	152.3	20.5	12.9
11 #	SY 517 CL2	Syngenta (AgriPro), 2017	39.4	60.1	151.4	21.4	13.4
18 #	LCS Chrome	Limagrain Cereal Seeds, 2016	38.9	60.7	154.7	23.1	13.7
4	Brawl CLP	Colorado Wheat Res. Fdn., 2011	38.6	<b>61.2</b>	150.9	21.6	14.0
12 #+	07CL046-2 (SY Legend CL2	Syngenta, 2018: now SY Legend C	38.0	60.3	153.3	23.6	13.6
28 #	Langin	Colorado Wheat Res. Fdn., 2016	37.5	59.3	151.1	23.0	12.0
24 #	Long Branch	Dyna-Gro Wheat, 2015	33.8	59.0	152.0	20.8	12.5
	<b>Average</b>		<b>44.0</b>	<b>59.8</b>	<b>155.2</b>	<b>23.3</b>	<b>13.6</b>
	<b>LSD (0.05)</b>		<b>4.8</b>	<b>0.6</b>	<b>1.5</b>	<b>2.6</b>	<b>0.5</b>
	<b>C. V. (%)</b>		<b>6.5</b>	<b>0.7</b>	<b>0.6</b>	<b>6.8</b>	<b>2.2</b>
	<b>P-value (Varieties)</b>		<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>

**bold** = indicates highest value within a column

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

**Table 6. 2018 Intrastate Winter Wheat Test (Exp. 3505): Kalispell**

Entry	Cultivar/Line	Pedigree	Yield bu/ac	Test weight lb/bu	Heading date Julian	Plant height in	Protein %
	d = cultivars/lines dropped for 2019 test + = new for 2018, # = paid entry		LAT	RCB	LAT	LAT	LAT
		lattice efficiency relative to RCB	135%		125%	116%	138%
22	#+ d NSA10-2196	Limagrain Cereal Seeds exp. line	<b>124.9</b>	58.7	157.4	35.1	10.7
23	#+ LWW14-73915 (LCS Zoom)	Limagrain, 2018: now LCS Zoom	<b>122.3</b>	<b>59.6</b>	158.7	33.1	11.4
21	# LCS Jet	Limagrain Cereal Seeds, 2015	<b>122.3</b>	<b>59.0</b>	158.0	34.5	10.2
37	MT1564	Yellowstone*2/PI640431	<b>106.2</b>	<b>62.0</b>	154.4	37.7	11.2
46	+ d MT16101	MT08185//YLL*2/PI640431/3/Pron	105.5	<b>60.0</b>	158.1	38.7	12.0
24	# Long Branch	Dyna-Gro Wheat, 2015	101.5	<b>62.2</b>	153.6	34.0	11.4
13	# Keldin	WestBred, 2011	101.3	<b>61.8</b>	158.7	37.7	11.2
48	+ Oahe	South Dakota, 2016	100.5	<b>62.3</b>	156.0	41.1	12.0
42	+ MT1683	Yellowstone(L)*2/CDC Buteo	100.1	<b>59.5</b>	159.9	41.7	11.5
33	Ray	Montana, 2018 (MTF1432)	97.2	53.9	163.6	41.0	11.6
40	+ MT1642	Yellowstone/Madsen//Yellowstone	96.2	54.3	161.8	35.3	11.6
10	# SY Sunrise	Syngenta (AgriPro), 2015	95.3	<b>61.7</b>	158.2	32.3	11.7
35	d MT1547	Yellowstone/MT0684	94.5	<b>62.0</b>	158.0	37.3	11.1
2	Judee	Montana, 2011	94.5	58.4	158.9	39.1	<b>13.2</b>
38	MTS1588	MT0598/98X366E29-1	94.1	<b>59.8</b>	159.1	34.5	12.0
45	+ d MT1695	Yellowstone*2/PI640431	93.7	<b>61.8</b>	154.8	35.6	11.1
26	d MT1265	Yellowstone*4/KS96WGRC40 (Lr <sub>2</sub>	93.1	58.6	161.1	39.3	11.1
32	MTW1491	MT08189//MT08187/(MTW08166,	92.4	<b>59.5</b>	160.0	39.4	11.4
31	FourOsix	Montana, 2018 (MT1465)	92.4	<b>61.2</b>	159.2	37.3	11.2
3	Warhorse	Montana, 2013	92.0	<b>61.0</b>	160.9	35.6	12.5
43	+ d MT1687	Yellowstone(L)*2/(OK00611W, Ok	89.6	<b>61.6</b>	156.9	33.0	12.8
6	SY Clearstone 2CL	Montana/Syngenta, 2012	89.6	<b>59.1</b>	160.0	44.0	11.0
25	Loma	Montana, 2016	87.6	55.4	159.6	37.2	12.3
14	# d WB4623CLP	WestBred, 2015	87.2	<b>60.9</b>	158.8	36.2	12.5
28	# Langin	Colorado Wheat Res. Fdn., 2016	87.1	58.7	151.2	37.2	11.5
4	Brawl CLP	Colorado Wheat Res. Fdn., 2011	86.9	<b>60.2</b>	151.9	33.4	12.2
36	d MT1563	Yellowstone*2/PI640431	86.6	56.4	160.5	39.2	11.3
47	+ d MTF1631	MT08184*3//YLL(L)*2/98X168E1	85.6	55.0	159.0	43.0	12.1
39	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E6	85.4	<b>60.5</b>	159.4	35.4	12.7
9	# SY Monument	Syngenta (AgriPro), 2015	84.1	58.8	156.1	36.3	11.6
1	Yellowstone	Montana 2005	83.6	57.8	161.1	36.6	11.0
30	#+ AAC Wildfire	Alberta; (SECAN), 2015	83.2	55.8	161.0	42.7	11.9
41	+ d MTV1681	Yellowstone*2//WillowCreek/MT06	82.2	55.9	157.9	37.3	11.8
20	#+ d LCS Link	Limagrain Cereal Seeds, 2017	80.1	<b>59.7</b>	155.3	34.6	11.6
34	d MTF1435	MT08186//Yellowstone(L)*2/98X16	79.8	56.5	160.9	43.1	12.1
44	+ d MT1688	Yellowstone(L)*2/(OK00611W, Ok	79.7	<b>61.4</b>	155.2	33.4	12.4
18	# LCS Chrome	Limagrain Cereal Seeds, 2016	78.5	<b>61.0</b>	155.1	37.2	11.8
7	Northern	Montana, 2015	78.2	56.2	161.2	37.0	12.2
15	# d WB4483	WestBred, 2016	74.5	57.6	160.9	35.2	12.3
17	# d WB4614	WestBred, 2013	72.2	57.5	157.5	34.7	11.7
19	# d PSB13NEDH-7-140	Limagrain Cereal Seeds exp. line	72.1	<b>59.7</b>	157.6	41.2	11.6
8	d SY Wolf	Syngenta (AgriPro), 2010	71.5	56.4	153.7	33.0	12.2
12	#+ 07CL046-2 (SY Legend CL2)	Syngenta, 2018: now SY Legend (	71.2	<b>60.8</b>	156.0	30.1	12.0
29	# CO13003C (Byrd CL Plus)	Colorado, 2018: now Byrd CL Plus	70.1	55.3	154.9	38.5	11.8
11	# SY 517 CL2	Syngenta (AgriPro), 2017	53.2	56.0	151.3	36.1	11.6
27	#+ Incline AX	Colorado Wheat Res. Fdn., 2017	52.9	52.7	158.2	34.5	11.4
5	Decade	Montana/North Dakota, 2010	48.4	53.1	157.6	39.5	11.5
16	# d WB4575	WestBred, 2016	36.4	53.3	158.8	35.7	12.4
49	d Bearpaw	Montana, 2011	25.7	49.6	157.4	37.8	<b>13.9</b>
<b>Average</b>			<b>85.4</b>	<b>58.4</b>	<b>157.9</b>	<b>37.0</b>	<b>11.8</b>
<b>LSD (0.05)</b>			<b>19.2</b>	<b>3.4</b>	<b>2.8</b>	<b>3.9</b>	<b>0.7</b>
<b>C. V. (%)</b>			<b>12.9</b>	<b>3.6</b>	<b>1.0</b>	<b>6.1</b>	<b>3.6</b>
<b>P-value (Varieties)</b>			<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>

**bold** = indicates highest value within a column

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

**Table 7. 2018 Intrastate Winter Wheat Test (Exp. 3507): Moccasin**

Entry	Cultivar/Line	Pedigree	Yield bu/ac	Test weight lb/bu	Heading date Julian	Plant height in	Protein %
			RCB	RCB	RCB	RCB	RCB
		lattice efficiency relative to RCB					
42 +	<b>MT1683</b>	Yellowstone(L)*2/CDC Buteo	<b>81.9</b>	62.5	166.0	32.0	11.9
33	<b>Ray</b>	Montana, 2018 (MTF1432)	<b>77.9</b>	59.7	172.0	37.3	11.6
40 +	<b>MT1642</b>	Yellowstone/Madsen//Yellowstone	<b>76.0</b>	61.2	171.0	32.0	11.8
26 d	<b>MT1265</b>	Yellowstone*4/KS96WGRC40 (Lr	<b>74.2</b>	61.9	171.0	32.0	11.5
35 d	<b>MT1547</b>	Yellowstone/MT0684	<b>72.9</b>	63.2	167.0	30.0	12.1
9 #	<b>SY Monument</b>	Syngenta (AgriPro), 2015	<b>72.7</b>	63.0	164.0	28.3	11.7
17 # d	<b>WB4614</b>	WestBred, 2013	<b>72.6</b>	63.9	165.0	28.3	11.6
36 d	<b>MT1563</b>	Yellowstone*2/PI640431	<b>72.1</b>	63.1	169.3	30.7	11.3
32	<b>MTW1491</b>	MT08189//MT08187/(MTW08166,	70.7	63.0	167.3	31.0	11.1
28 #	<b>Langin</b>	Colorado Wheat Res. Fdn., 2016	70.5	63.0	158.7	24.7	11.4
46 + d	<b>MT16101</b>	MT08185//YLL*2/PI640431/3/Pron	70.5	63.5	164.0	30.7	11.9
41 + d	<b>MTV1681</b>	Yellowstone*2//WillowCreek/MT06	70.1	61.9	169.0	31.0	12.4
21 #	<b>LCS Jet</b>	Limagrain Cereal Seeds, 2015	69.8	59.5	171.0	26.0	11.2
1	<b>Yellowstone</b>	Montana 2005	69.7	62.3	169.0	31.7	11.7
31	<b>FourOsix</b>	Montana, 2018 (MT1465)	69.2	63.7	165.0	29.0	12.6
6	<b>SY Clearstone 2CL</b>	Montana/Syngenta, 2012	69.0	62.0	171.0	32.0	11.6
43 + d	<b>MT1687</b>	Yellowstone(L)*2/(OK00611W, Or	68.9	63.4	162.0	30.0	12.5
23 #+	<b>LWW14-73915 (LCS Zoom</b>	Limagrain, 2018: now LCS Zoom	68.8	60.0	163.0	27.0	11.5
39 +	<b>MTCS1601</b>	MTS0531/7/MTS0532/6/96X17E6	68.4	63.3	165.7	29.7	12.6
27 #+	<b>Incline AX</b>	Colorado Wheat Res. Fdn., 2017	68.0	61.2	167.0	29.7	11.5
29 #	<b>CO13003C (Byrd CL Plus)</b>	Colorado, 2018: now Byrd CL Plus	67.7	64.0	162.0	30.3	11.5
25	<b>Loma</b>	Montana, 2016	67.3	62.4	171.0	27.7	11.8
44 + d	<b>MT1688</b>	Yellowstone(L)*2/(OK00611W, Or	66.3	63.4	160.3	26.7	<b>12.8</b>
13 #	<b>Keldin</b>	WestBred, 2011	65.7	63.2	167.0	28.7	12.1
20 #+ d	<b>LCS Link</b>	Limagrain Cereal Seeds, 2017	65.6	63.7	162.0	27.3	12.4
37	<b>MT1564</b>	Yellowstone*2/PI640431	65.6	63.5	160.7	26.7	12.2
7	<b>Northern</b>	Montana, 2015	65.4	62.8	171.0	29.7	12.2
30 #+	<b>AAC Wildfire</b>	Alberta; (SECAN), 2015	65.1	61.5	172.3	33.0	11.8
48 +	<b>Oahe</b>	South Dakota, 2016	65.1	<b>64.1</b>	162.0	30.3	12.3
45 + d	<b>MT1695</b>	Yellowstone*2/PI640431	64.9	62.5	163.0	29.3	12.4
47 + d	<b>MTF1631</b>	MT08184*3//YLL(L)*2/98X168E1	64.1	62.0	171.0	37.3	12.0
22 #+ d	<b>NSA10-2196</b>	Limagrain Cereal Seeds exp. line	64.1	60.5	167.0	26.3	11.6
38	<b>MTS1588</b>	MT0598/98X366E29-1	63.7	63.6	169.3	27.3	11.8
10 #	<b>SY Sunrise</b>	Syngenta (AgriPro), 2015	63.7	<b>64.4</b>	162.0	23.0	12.3
16 # d	<b>WB4575</b>	WestBred, 2016	62.5	<b>64.9</b>	167.3	27.0	<b>13.0</b>
15 # d	<b>WB4483</b>	WestBred, 2016	62.1	63.2	169.3	28.0	11.5
14 # d	<b>WB4623CLP</b>	WestBred, 2015	62.0	63.2	167.3	29.7	<b>12.8</b>
24 #	<b>Long Branch</b>	Dyna-Gro Wheat, 2015	61.9	63.4	158.3	24.7	12.0
49 d	<b>Bearpaw</b>	Montana, 2011	61.7	63.4	167.0	28.3	<b>12.8</b>
34 d	<b>MTF1435</b>	MT08186//Yellowstone(L)*2/98X16	61.7	61.2	171.7	38.3	12.3
8 d	<b>SY Wolf</b>	Syngenta (AgriPro), 2010	61.1	64.0	162.0	26.3	<b>12.7</b>
19 # d	<b>PSB13NEDH-7-140</b>	Limagrain Cereal Seeds exp. line	60.6	63.9	163.3	29.0	<b>13.5</b>
11 #	<b>SY 517 CL2</b>	Syngenta (AgriPro), 2017	60.4	<b>64.3</b>	162.0	26.3	12.6
4	<b>Brawl CLP</b>	Colorado Wheat Res. Fdn., 2011	60.0	<b>64.2</b>	160.7	26.0	<b>13.6</b>
5	<b>Decade</b>	Montana/North Dakota, 2010	60.0	62.5	165.0	31.0	<b>13.0</b>
3	<b>Warhorse</b>	Montana, 2013	59.7	62.5	167.7	28.3	12.6
2	<b>Judee</b>	Montana, 2011	57.1	63.9	166.0	29.7	<b>12.7</b>
18 #	<b>LCS Chrome</b>	Limagrain Cereal Seeds, 2016	53.7	64.0	163.0	28.3	<b>13.0</b>
12 #+	<b>07CL046-2 (SY Legend Cl</b>	Syngenta, 2018: now SY Legend C	50.6	<b>64.1</b>	162.0	26.3	<b>13.2</b>
	<b>Average</b>		<b>66.2</b>	<b>62.8</b>	<b>165.9</b>	<b>29.3</b>	<b>12.2</b>
	<b>LSD (0.05)</b>		<b>11.2</b>	<b>0.8</b>	<b>3.5</b>	<b>2.2</b>	<b>0.9</b>
	<b>C. V. (%)</b>		<b>10.4</b>	<b>0.8</b>	<b>1.3</b>	<b>4.6</b>	<b>4.4</b>
	<b>P-value (Varieties)</b>		<b>0.0006</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>

**bold** = indicates highest value within a column

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

**Table 8. 2018 Intrastate Winter Wheat Test (Exp. 3508): Huntley**

Entry	Cultivar/Line	Pedigree	Yield bu/ac	Test weight lb/bu	Heading date Julian	Plant height in	Protein %
	d = cultivars/lines dropped for 2019 test + = new for 2018, # = paid entry		LAT	LAT	RCB	RCB	bulk
		lattice efficiency relative to RCB	117%	115%			
13 #	<b>Keldin</b>	WestBred, 2011	<b>136.6</b>	<b>63.1</b>	159.7	40.4	11.7
21 #	<b>LCS Jet</b>	Limagrain Cereal Seeds, 2015	<b>134.9</b>	61.5	158.3	36.9	12.6
23 #+	<b>LWW14-73915 (LCS Zoom)</b>	Limagrain, 2018: now LCS Zoom	<b>131.9</b>	60.2	156.3	37.5	12.0
20 #+ d	<b>LCS Link</b>	Limagrain Cereal Seeds, 2017	<b>127.0</b>	<b>62.9</b>	154.0	37.7	11.8
28 #	<b>Langin</b>	Colorado Wheat Res. Fdn., 2016	<b>126.7</b>	61.3	153.0	37.6	11.5
29 #	<b>CO13003C (Byrd CL Plus)</b>	Colorado, 2018: now Byrd CL Plus	<b>125.5</b>	62.0	155.7	44.8	11.6
19 # d	<b>PSB13NEDH-7-140</b>	Limagrain Cereal Seeds exp. line	<b>125.5</b>	<b>63.2</b>	158.0	41.8	12.6
22 #+ d	<b>NSA10-2196</b>	Limagrain Cereal Seeds exp. line	122.6	58.6	158.0	36.4	11.8
9 #	<b>SY Monument</b>	Syngenta (AgriPro), 2015	122.1	62.3	157.0	38.5	12.0
8 # d	<b>SY Wolf</b>	Syngenta (AgriPro), 2010	121.5	<b>62.8</b>	154.7	36.9	12.7
11 #	<b>SY 517 CL2</b>	Syngenta (AgriPro), 2017	120.6	<b>63.4</b>	153.0	39.1	11.8
40 +	<b>MT1642</b>	Yellowstone/Madsen//Yellowstone	120.3	61.6	162.7	41.9	12.8
43 + d	<b>MT1687</b>	Yellowstone(L)*2/(OK00611W, Ok	118.7	<b>63.2</b>	157.7	39.8	12.6
24 #	<b>Long Branch</b>	Dyna-Gro Wheat, 2015	118.4	<b>62.8</b>	153.7	38.0	11.3
37	<b>MT1564</b>	Yellowstone*2/PI640431	116.8	<b>63.0</b>	154.3	40.7	11.8
26 d	<b>MT1265</b>	Yellowstone*4/KS96WGRC40 (Lr	114.6	61.5	161.7	43.7	12.5
5	<b>Decade</b>	Montana/North Dakota, 2010	114.5	60.9	158.0	41.4	12.2
4	<b>Brawl CLP</b>	Colorado Wheat Res. Fdn., 2011	114.0	<b>63.0</b>	153.0	39.1	12.8
36 d	<b>MT1563</b>	Yellowstone*2/PI640431	113.6	62.0	160.7	41.9	12.2
46 + d	<b>MT16101</b>	MT08185//YLL*2/PI640431/3/Pron	113.2	62.6	157.0	40.9	12.1
35 d	<b>MT1547</b>	Yellowstone/MT0684	113.1	62.4	159.3	39.6	12.2
49 d	<b>Bearpaw</b>	Montana, 2011	112.4	61.8	158.3	40.0	13.0
44 + d	<b>MT1688</b>	Yellowstone(L)*2/(OK00611W, Ok	111.1	61.9	157.3	37.9	12.7
31	<b>FourOsix</b>	Montana, 2018 (MT1465)	111.0	62.1	158.3	38.6	12.5
3	<b>Warhorse</b>	Montana, 2013	110.6	62.6	160.3	37.7	13.4
48 +	<b>Oahe</b>	South Dakota, 2016	110.4	<b>63.5</b>	157.0	46.9	12.3
27 #+	<b>Incline AX</b>	Colorado Wheat Res. Fdn., 2017	108.7	60.9	157.7	38.9	11.3
18 #	<b>LCS Chrome</b>	Limagrain Cereal Seeds, 2016	108.4	<b>63.0</b>	157.3	40.2	12.6
7	<b>Northern</b>	Montana, 2015	108.4	62.4	162.0	40.7	12.3
41 + d	<b>MTV1681</b>	Yellowstone*2//WillowCreek/MT06	108.3	61.4	159.7	40.7	12.5
10 #	<b>SY Sunrise</b>	Syngenta (AgriPro), 2015	108.3	62.5	155.3	36.3	11.2
16 # d	<b>WB4575</b>	WestBred, 2016	106.9	<b>63.3</b>	159.0	37.7	12.3
32	<b>MTW1491</b>	MT08189//MT08187/(MTW08166,	106.7	<b>62.8</b>	161.0	42.3	12.1
42 +	<b>MT1683</b>	Yellowstone(L)*2/CDC Buteo	105.1	61.8	161.3	40.8	12.3
39 +	<b>MTCS1601</b>	MTS0531/7/MTS0532/6/96X17E6:	104.9	<b>62.8</b>	159.0	38.5	13.2
33	<b>Ray</b>	Montana, 2018 (MTF1432)	104.9	61.0	162.7	46.3	13.1
1	<b>Yellowstone</b>	Montana 2005	104.5	61.5	161.0	41.3	12.5
6	<b>SY Clearstone 2CL</b>	Montana/Syngenta, 2012	103.4	61.4	160.7	42.3	12.5
47 + d	<b>MTF1631</b>	MT08184*3//YLL(L)*2/98X168E1	102.7	<b>62.9</b>	161.0	47.3	13.7
12 #+	<b>07CL046-2 (SY Legend CL2)</b>	Syngenta, 2018: now SY Legend (	102.5	<b>63.1</b>	155.7	37.1	12.0
38	<b>MTS1588</b>	MT0598/98X366E29-1	100.8	62.3	160.3	36.3	12.8
2	<b>Judee</b>	Montana, 2011	100.2	62.2	159.0	40.8	12.7
14 # d	<b>WB4623CLP</b>	WestBred, 2015	99.5	<b>62.9</b>	158.3	40.3	13.3
30 #+	<b>AAC Wildfire</b>	Alberta; (SECAN), 2015	98.8	62.7	162.7	40.6	12.8
45 + d	<b>MT1695</b>	Yellowstone*2/PI640431	98.5	62.0	157.3	39.2	11.8
25	<b>Loma</b>	Montana, 2016	98.0	61.1	162.0	34.6	12.4
17 # d	<b>WB4614</b>	WestBred, 2013	97.2	61.5	160.0	39.2	12.5
15 # d	<b>WB4483</b>	WestBred, 2016	90.8	60.0	161.7	38.2	13.2
34 d	<b>MTF1435</b>	MT08186//Yellowstone(L)*2/98X1t	89.4	61.7	161.7	52.8	13.2
	<b>Average</b>		<b>111.5</b>	<b>62.1</b>	<b>158.4</b>	<b>40.2</b>	<b>12.4</b>
	<b>LSD (0.05)</b>		<b>11.7</b>	<b>0.7</b>	<b>1.2</b>	<b>3.3</b>	
	<b>C. V. (%)</b>		<b>6.1</b>	<b>0.7</b>	<b>0.5</b>	<b>5.0</b>	
	<b>P-value (Varieties)</b>						

**bold** = indicates highest value within a column

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

**Table 9. 2018 Intrastate Winter Wheat Test (Exp. 3518): Conrad**

Entry	Cultivar/Line	Pedigree	Yield bu/ac	Test weight lb/bu	Heading date Julian	Plant height in	Sawfly cutting %	Protein %
	d = cultivars/lines dropped for 2019 test + = new for 2018, # = paid entry		LAT	RCB	LAT	LAT	RCB	RCB
		lattice efficiency relative to RCB	114%		107%	111%		
29 #	CO13003C (Byrd CL Plus)	Colorado, 2018: now Byrd CL Plus	<b>76.5</b>	61.0	155.5	27.3	21	12.9
23 #+	LWW14-73915 (LCS Zoom)	Limagrain, 2018: now LCS Zoom	<b>72.8</b>	60.1	154.8	24.2	40	12.8
12 #+	07CL046-2 (SY Legend CL2)	Syngenta, 2018: now SY Legend (	<b>71.5</b>	61.5	156.4	24.9	<b>12</b>	13.4
39 +	MTCS1601	MTS0531/7/MTS0532/6/96X17E6	<b>71.3</b>	61.9	160.3	28.0	<b>9</b>	13.7
14 #	d WB4623CLP	WestBred, 2015	<b>71.0</b>	61.9	160.2	25.8	32	14.3
28 #	Langin	Colorado Wheat Res. Fdn., 2016	<b>69.0</b>	61.8	152.4	24.0	<b>11</b>	12.3
11 #	SY 517 CL2	Syngenta (AgriPro), 2017	<b>69.0</b>	<b>63.0</b>	152.3	23.8	<b>9</b>	12.8
27 #+	Incline AX	Colorado Wheat Res. Fdn., 2017	<b>68.3</b>	61.1	157.1	26.4	15	11.9
17 #	d WB4614	WestBred, 2013	<b>67.4</b>	<b>62.9</b>	161.4	28.2	<b>13</b>	13.9
38	MTS1588	MT0598/98X366E29-1	<b>67.0</b>	62.7	160.9	25.3	<b>1</b>	14.5
21 #	LCS Jet	Limagrain Cereal Seeds, 2015	<b>66.7</b>	60.3	161.7	24.8	18	13.8
6	SY Clearstone 2CL	Montana/Syngenta, 2012	<b>65.5</b>	59.9	163.6	30.7	18	14.0
4	Brawl CLP	Colorado Wheat Res. Fdn., 2011	65.5	<b>63.6</b>	152.5	26.6	<b>10</b>	13.1
25	Loma	Montana, 2016	64.6	62.6	162.9	26.8	<b>11</b>	14.9
16 #	d WB4575	WestBred, 2016	64.1	<b>64.3</b>	160.4	25.9	<b>11</b>	14.2
10 #	SY Sunrise	Syngenta (AgriPro), 2015	63.9	<b>63.3</b>	154.6	22.3	30	12.8
8	d SY Wolf	Syngenta (AgriPro), 2010	63.9	62.9	158.0	25.5	<b>9</b>	14.0
24 #	Long Branch	Dyna-Gro Wheat, 2015	63.8	<b>63.1</b>	152.7	23.7	17	13.1
9 #	SY Monument	Syngenta (AgriPro), 2015	63.7	61.4	157.3	23.8	29	13.1
22 #+	d NSA10-2196	Limagrain Cereal Seeds exp. line	62.4	60.2	159.4	24.8	33	13.3
15 #	d WB4483	WestBred, 2016	61.7	61.9	162.0	26.4	14	14.7
30 #+	AAC Wildfire	Alberta; (SECAN), 2015	61.7	60.7	166.0	31.2	19	13.7
13 #	Keldin	WestBred, 2011	61.5	62.4	160.9	25.8	27	13.8
33	Ray	Montana, 2018 (MTF1432)	61.4	60.0	165.3	31.8	22	13.8
48 +	Oahe	South Dakota, 2016	61.2	61.7	155.5	27.3	21	13.3
40 +	MT1642	Yellowstone/Madsen//Yellowstone	60.9	60.6	164.1	29.7	<b>11</b>	14.7
31	FourOsix	Montana, 2018 (MT1465)	60.8	61.2	158.8	25.3	29	14.0
35	d MT1547	Yellowstone/MT0684	59.8	61.3	159.7	27.0	24	14.1
19 #	d PSB13NEDH-7-140	Limagrain Cereal Seeds exp. line	59.6	61.9	157.6	27.2	17	14.8
36	d MT1563	Yellowstone*2/PI640431	59.6	60.7	163.5	30.8	20	14.3
47 +	d MTF1631	MT08184*3/YLL(L)*2/98X168E1	59.1	61.3	161.7	32.4	22	13.7
42 +	MT1683	Yellowstone(L)*2/CDC Buteo	58.5	61.2	163.4	29.1	26	14.5
26	d MT1265	Yellowstone*4/KS96WGRC40 (Lr-	58.1	61.6	164.5	30.2	21	14.4
44 +	d MT1688	Yellowstone(L)*2/(OK00611W, O	57.9	61.2	157.5	24.6	23	<b>15.1</b>
32	MTW1491	MT08189//MT08187/(MTW08166,	57.3	61.4	161.7	30.4	14	14.1
2	Judee	Montana, 2011	57.0	<b>63.3</b>	160.1	27.7	<b>9</b>	<b>15.2</b>
46 +	d MT16101	MT08185//YLL*2/PI640431/3/Pron	56.6	62.5	156.4	27.7	<b>12</b>	13.9
34	d MTF1435	MT08186//Yellowstone(L)*2/98X1	56.5	61.0	164.0	33.1	16	13.8
1	Yellowstone	Montana 2005	56.4	60.9	163.4	29.9	20	14.6
18 #	LCS Chrome	Limagrain Cereal Seeds, 2016	56.1	62.1	156.2	26.7	42	14.3
7	Northern	Montana, 2015	55.1	62.0	162.9	26.0	17	14.5
43 +	d MT1687	Yellowstone(L)*2/(OK00611W, O	54.1	61.9	157.6	26.7	16	<b>15.3</b>
37	MT1564	Yellowstone*2/PI640431	53.1	61.4	156.0	26.4	15	<b>15.2</b>
5	Decade	Montana/North Dakota, 2010	52.5	62.4	158.6	26.2	<b>12</b>	14.9
20 #+	d LCS Link	Limagrain Cereal Seeds, 2017	50.7	<b>64.2</b>	155.0	24.3	<b>11</b>	14.6
3	Warhorse	Montana, 2013	50.0	60.3	160.0	26.0	<b>4</b>	<b>15.0</b>
41 +	d MTV1681	Yellowstone*2//WillowCreek/MT0	49.3	60.6	160.6	25.3	24	14.8
45 +	d MT1695	Yellowstone*2/PI640431	48.9	61.5	156.1	25.4	15	14.6
49	d Bearpaw	Montana, 2011	48.2	62.5	159.1	26.5	<b>8</b>	<b>15.7</b>
	<b>Average</b>		<b>61.0</b>	<b>61.7</b>	<b>159.2</b>	<b>26.9</b>	<b>17.9</b>	<b>14.0</b>
	<b>LSD (0.05)</b>		<b>11.0</b>	<b>1.4</b>	<b>2.1</b>	<b>3.3</b>	<b>13.0</b>	<b>0.8</b>
	<b>C. V. (%)</b>		<b>10.4</b>	<b>1.4</b>	<b>0.8</b>	<b>7.1</b>	<b>43.4</b>	<b>3.2</b>
	<b>P-value (Varieties)</b>		<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>

**bold** = indicates highest value within a column

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

**Table 10. 2018 Intrastate Winter Wheat Test (Exp. 35FB): Fort Benton/Carter (Northern Seeds)**

Entry	Cultivar/Line	Pedigree	Yield bu/ac	Test weight lb/bu	Plant height	Sawfly cutting %	Protein %
	d = cultivars/lines dropped for 2019 test + = new for 2018, # = paid entry		RCB	RCB	1 rep	30-Jul	bulk
48 +	Oahe	South Dakota, 2016	<b>83.0</b>	<b>61.3</b>	33	67	11.5
16 #	d WB4575	WestBred, 2016	<b>81.1</b>	<b>62.2</b>	27	32	12.2
9 #	SY Monument	Syngenta (AgriPro), 2015	<b>76.4</b>	58.6	29	60	11.5
29 #	CO13003C (Byrd CL Plus)	Colorado, 2018: now Byrd CL Plus	<b>73.8</b>	60.2	33	47	11.6
17 #	d WB4614	WestBred, 2013	<b>72.7</b>	<b>61.3</b>	30	38	11.9
3	Warhorse	Montana, 2013	<b>72.4</b>	60.7	30	<b>0</b>	12.6
10 #	SY Sunrise	Syngenta (AgriPro), 2015	<b>72.1</b>	60.5	24	35	11.6
49	d Bearpaw	Montana, 2011	<b>70.7</b>	<b>61.7</b>	32	<b>25</b>	11.9
20 #+	d LCS Link	Limagrain Cereal Seeds, 2017	<b>70.7</b>	60.8	27	53	11.2
30 #+	AAC Wildfire	Alberta; (SECAN), 2015	<b>70.2</b>	59.9	37	<b>7</b>	12.3
1	Yellowstone	Montana 2005	<b>70.0</b>	58.8	33	92	12.1
7	Northern	Montana, 2015	<b>69.7</b>	59.8	34	43	12.1
12 #+	07CL046-2 (SY Legend CL2)	Syngenta, 2018: now SY Legend C	<b>69.3</b>	60.1	30	33	11.8
38	MTS1588	MT0598/98X366E29-1	<b>68.6</b>	<b>61.4</b>	29	<b>2</b>	11.6
6	SY Clearstone 2CL	Montana/Syngenta, 2012	<b>68.5</b>	59.1	34	88	12.3
42 +	MT1683	Yellowstone(L)*2/CDC Buteo	<b>67.5</b>	59.5	32	92	11.7
24 #	Long Branch	Dyna-Gro Wheat, 2015	<b>67.2</b>	60.8	28	53	10.9
25	Loma	Montana, 2016	<b>67.1</b>	59.3	30	<b>18</b>	12.3
5	Decade	Montana/North Dakota, 2010	<b>66.8</b>	59.8	31	38	12.5
40 +	MT1642	Yellowstone/Madsen//Yellowstone	<b>66.7</b>	58.5	32	40	12.2
36	d MT1563	Yellowstone*2/PI640431	65.9	59.0	35	70	12.3
18 #	LCS Chrome	Limagrain Cereal Seeds, 2016	65.5	60.5	32	63	12.0
47 +	d MTF1631	MT08184*3//YLL(L)*2/98X168E1	65.2	59.8	39	53	12.5
2	Judee	Montana, 2011	64.0	<b>61.0</b>	30	30	12.4
34	d MTF1435	MT08186//Yellowstone(L)*2/98X16	63.7	59.4	41	47	12.2
35	d MT1547	Yellowstone/MT0684	63.5	59.6	28	90	12.8
4	Brawl CLP	Colorado Wheat Res. Fdn., 2011	63.2	<b>62.7</b>	26	38	12.3
26	d MT1265	Yellowstone*4/KS96WGRC40 (Lr	63.2	59.7	34	72	11.7
19 #	d PSB13NEDH-7-140	Limagrain Cereal Seeds exp. line	62.7	<b>61.8</b>	29	60	12.3
44 +	d MT1688	Yellowstone(L)*2/(OK00611W, Ok	62.3	59.7	29	72	12.4
32	MTW1491	MT08189//MT08187//MTW08166,	61.0	59.2	30	83	11.9
8	d SY Wolf	Syngenta (AgriPro), 2010	60.2	<b>62.1</b>	26	<b>18</b>	11.8
13 #	Keldin	WestBred, 2011	60.0	60.1	32	47	11.9
11 #	SY 517 CL2	Syngenta (AgriPro), 2017	59.0	<b>61.8</b>	27	43	12.3
37	MT1564	Yellowstone*2/PI640431	58.8	60.1	28	85	11.8
43 +	d MT1687	Yellowstone(L)*2/(OK00611W, Ok	58.6	60.7	27	78	12.2
14 #	d WB4623CLP	WestBred, 2015	58.5	<b>61.5</b>	27	<b>23</b>	12.9
28 #	Langin	Colorado Wheat Res. Fdn., 2016	58.2	60.0	24	75	11.0
33	Ray	Montana, 2018 (MTF1432)	56.6	58.1	36	43	12.2
15 #	d WB4483	WestBred, 2016	56.0	60.0	33	<b>27</b>	12.2
46 +	d MT16101	MT08185//YLL*2/PI640431/3/Pron	55.0	60.4	31	80	12.1
27 #+	Incline AX	Colorado Wheat Res. Fdn., 2017	54.9	59.0	28	43	11.5
21 #	LCS Jet	Limagrain Cereal Seeds, 2015	54.6	57.5	29	47	11.9
45 +	d MT1695	Yellowstone*2/PI640431	54.4	58.8	25	92	12.1
23 #+	LWW14-73915 (LCS Zoom)	Limagrain, 2018: now LCS Zoom	53.9	55.0	30	80	12.0
31	FourOsix	Montana, 2018 (MT1465)	53.5	60.1	30	73	12.2
41 +	d MTV1681	Yellowstone*2//WillowCreek/MT06	53.3	58.6	30	57	12.6
39 +	MTCS1601	MTS0531/7/MTS0532/6/96X17E6:	52.8	60.6	33	40	12.4
22 #+	d NSA10-2196	Limagrain Cereal Seeds exp. line	52.2	55.5	28	87	11.6
<b>Average</b>			<b>64.0</b>	<b>59.9</b>	<b>30.4</b>	<b>52.7</b>	<b>12.0</b>
<b>LSD (0.05)</b>			<b>16.5</b>	<b>1.6</b>		<b>22.7</b>	
<b>C. V. (%)</b>			<b>15.9</b>	<b>1.6</b>		<b>26.6</b>	
<b>P-value (Varieties)</b>			<b>0.0239</b>	<b>&lt;.0001</b>		<b>&lt;.0001</b>	

**bold** = indicates highest value within a column

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

Table 11. 2018 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Yield (bu/a)

Cultivar/Line	Bozeman LAT	Havre LAT	Sidney RCB	Williston RCB	Kalispell LAT	Moccasin RCB	Huntley LAT	Conrad LAT	Ft. Benton RCB	9 Loc Avg.
lattice efficiency	137%	124%			135%		117%	114%		
# Keldin	<b>144.6</b>	<b>68.6</b>	<b>92.1</b>	45.3	101.3	65.7	<b>136.6</b>	61.5	60.0	<b>86.2</b>
+ MT1683	<b>141.6</b>	61.5	<b>82.0</b>	48.7	100.1	<b>81.9</b>	105.1	58.5	<b>67.5</b>	<b>83.0</b>
d MT1265	<b>146.6</b>	58.0	<b>82.9</b>	48.7	93.1	<b>74.2</b>	114.6	58.1	63.2	<b>82.2</b>
# LCS Jet	<b>145.4</b>	59.5	42.2	43.0	<b>122.3</b>	69.8	<b>134.9</b>	<b>66.7</b>	54.6	<b>82.0</b>
# SY Monument	136.7	59.3	<b>80.2</b>	42.2	84.1	<b>72.7</b>	122.1	63.7	<b>76.4</b>	<b>81.9</b>
+ MT1642	<b>140.3</b>	60.1	63.4	<b>50.8</b>	96.2	<b>76.0</b>	120.3	60.9	<b>66.7</b>	<b>81.6</b>
## LWV14-73915 (LCS Zoo)	<b>139.9</b>	53.8	45.5	43.9	<b>122.3</b>	68.8	<b>131.9</b>	<b>72.8</b>	53.9	<b>81.4</b>
# CO13003C (Byrd CL Plus)	135.5	58.8	77.3	43.4	70.1	67.7	<b>125.5</b>	<b>76.5</b>	<b>73.8</b>	<b>81.0</b>
# Langin	<b>140.3</b>	62.3	68.7	37.5	87.1	70.5	<b>126.7</b>	<b>69.0</b>	58.2	<b>80.0</b>
d MT1547	132.9	59.4	76.0	46.8	94.5	<b>72.9</b>	113.1	59.8	63.5	<b>79.9</b>
MTW1491	<b>150.2</b>	60.5	72.9	47.7	92.4	70.7	106.7	57.3	61.0	<b>79.9</b>
d MT1563	<b>142.6</b>	61.0	60.6	<b>53.1</b>	86.6	<b>72.1</b>	113.6	59.6	65.9	<b>79.5</b>
# Long Branch	134.8	64.6	68.4	33.8	101.5	61.9	118.4	63.8	<b>67.2</b>	<b>79.4</b>
## AAC Wildfire	135.3	<b>72.5</b>	70.3	<b>55.1</b>	83.2	65.1	98.8	61.7	<b>70.2</b>	<b>79.1</b>
Ray	138.5	60.6	71.9	41.6	97.2	<b>77.9</b>	104.9	61.4	56.6	<b>79.0</b>
SY Clearstone 2CL	<b>142.4</b>	61.8	65.1	45.5	89.6	69.0	103.4	<b>65.5</b>	<b>68.5</b>	<b>79.0</b>
Northern	<b>147.8</b>	56.5	<b>83.7</b>	45.4	78.2	65.4	108.4	55.1	<b>69.7</b>	<b>78.9</b>
+ Oahe	120.7	49.2	74.2	42.5	100.5	65.1	110.4	61.2	<b>83.0</b>	<b>78.5</b>
Loma	<b>139.7</b>	60.5	72.0	46.6	87.6	67.3	98.0	64.6	<b>67.1</b>	<b>78.2</b>
MTS1588	134.5	62.7	64.3	47.0	94.1	63.7	100.8	<b>67.0</b>	<b>68.6</b>	<b>78.1</b>
Yellowstone	137.3	61.9	72.7	46.9	83.6	69.7	104.5	56.4	<b>70.0</b>	<b>78.1</b>
FourOsix	134.4	60.3	68.0	46.8	92.4	69.2	111.0	60.8	53.5	<b>77.4</b>
MT1564	130.5	61.2	57.2	44.5	<b>106.2</b>	65.6	116.8	53.1	58.8	<b>77.1</b>
+ d MTV1681	<b>145.2</b>	61.7	74.8	46.6	82.2	70.1	108.3	49.3	53.3	76.8
# SY Sunrise	114.6	61.0	70.8	40.0	95.3	63.7	108.3	63.9	<b>72.1</b>	76.6
+ d MT1687	124.3	58.7	69.8	45.1	89.6	68.9	118.7	54.1	58.6	76.4
+ MTCS1601	135.3	55.5	69.8	42.9	85.4	68.4	104.9	<b>71.3</b>	52.8	76.3
# d WB4614	135.6	56.9	66.0	44.6	72.2	<b>72.6</b>	97.2	<b>67.4</b>	<b>72.7</b>	76.1
## d LCS Link	134.5	49.5	61.8	41.6	80.1	65.6	<b>127.0</b>	50.7	<b>70.7</b>	75.7
+ d MTF1631	122.6	57.5	73.8	47.7	85.6	64.1	102.7	59.1	65.2	75.4
# d PSB13NEDH-7-140	124.7	48.9	<b>79.9</b>	43.5	72.1	60.6	<b>125.5</b>	59.6	62.7	75.3
+ d MT16101	131.0	55.8	44.9	43.9	105.5	70.5	113.2	56.6	55.0	75.2
## d NSA10-2196	138.4	56.2	10.9	45.2	<b>124.9</b>	64.1	122.6	62.4	52.2	75.2
Warhorse	120.7	57.0	69.1	45.2	92.0	59.7	110.6	50.0	<b>72.4</b>	75.2
+ d MT1688	128.0	60.0	67.5	41.1	79.7	66.3	111.1	57.9	62.3	74.9
d SY Wolf	117.2	59.7	70.9	43.8	71.5	61.1	121.5	63.9	60.2	74.4
Judee	128.2	55.7	66.7	43.9	94.5	57.1	100.2	57.0	64.0	74.1
Brawl CLP	115.3	57.6	60.7	38.6	86.9	60.0	114.0	65.5	63.2	73.5
## Incline AX	131.5	63.7	68.9	42.7	52.9	68.0	108.7	<b>68.3</b>	54.9	73.3
# d WB4483	133.2	61.2	72.3	43.8	74.5	62.1	90.8	61.7	56.0	72.8
# d WB4575	116.9	61.7	<b>80.5</b>	42.7	36.4	62.5	106.9	64.1	<b>81.1</b>	72.5
# LCS Chrome	115.7	54.5	76.6	38.9	78.5	53.7	108.4	56.1	65.5	72.0
Decade	129.3	53.6	73.4	44.3	48.4	60.0	114.5	52.5	<b>66.8</b>	71.4
# d WB4623CLP	127.5	52.7	41.7	41.0	87.2	62.0	99.5	<b>71.0</b>	58.5	71.2
## 07CL046-2 (SY Legend C)	117.1	55.0	63.1	38.0	71.2	50.6	102.5	<b>71.5</b>	<b>69.3</b>	70.9
+ d MT1695	132.5	56.5	47.3	40.6	93.7	64.9	98.5	48.9	54.4	70.8
# SY 517 CL2	113.7	51.3	60.3	39.4	53.2	60.4	120.6	<b>69.0</b>	59.0	69.7
d MTF1435	117.8	55.0	51.2	41.1	79.8	61.7	89.4	56.5	63.7	68.5
d Bearpaw	116.1	57.9	72.9	42.0	25.7	61.7	112.4	48.2	<b>70.7</b>	67.5
Average	<b>131.8</b>	<b>58.6</b>	<b>66.9</b>	<b>44.0</b>	<b>85.4</b>	<b>66.2</b>	<b>111.5</b>	<b>61.0</b>	<b>64.0</b>	<b>76.6</b>
LSD (0.05)	<b>11.6</b>	<b>7.3</b>	<b>13.4</b>	<b>4.8</b>	<b>19.2</b>	<b>11.2</b>	<b>11.7</b>	<b>11.0</b>	<b>16.5</b>	<b>9.3</b>
C. V. (%)	<b>5.0</b>	<b>7.1</b>	<b>10.0</b>	<b>6.5</b>	<b>12.9</b>	<b>10.4</b>	<b>6.1</b>	<b>10.4</b>	<b>15.9</b>	<b>13.0</b>
P-value (Varieties)	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>0.0006</b>		<b>&lt;.0001</b>	<b>0.0239</b>	<b>0.0246</b>

+ = new for 2018, # = paid entry

d = cultivars/lines dropped for 2019 test

**bold** = indicates highest value within a column

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

Table 12. 2018 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Test Weight (lb/bu)

Cultivar/Line	Bozeman LAT	Havre LAT	Sidney RCB	Williston RCB	Kalispell RCB	Moccasin RCB	Huntley LAT	Conrad RCB	Ft. Benton RCB	9 Loc Avg.
lattice efficiency	105%	121%					115%			
<b>Brawl CLP</b>	<b>65.3</b>	<b>64.3</b>	<b>64.4</b>	<b>61.2</b>	<b>60.2</b>	<b>64.2</b>	<b>63.0</b>	<b>63.6</b>	<b>62.7</b>	<b>63.2</b>
+ <b>Oahe</b>	65.1	63.4	<b>64.4</b>	60.5	<b>62.3</b>	<b>64.1</b>	<b>63.5</b>	61.7	<b>61.3</b>	<b>62.9</b>
#+ d <b>LCS Link</b>	<b>65.2</b>	63.4	<b>64.2</b>	60.6	<b>59.7</b>	63.7	<b>62.9</b>	<b>64.2</b>	60.8	<b>62.7</b>
# <b>SY Sunrise</b>	<b>65.2</b>	63.8	<b>63.5</b>	59.7	<b>61.7</b>	<b>64.4</b>	62.5	<b>63.3</b>	60.5	<b>62.7</b>
# <b>Keldin</b>	64.6	63.1	<b>64.1</b>	60.7	<b>61.8</b>	63.2	<b>63.1</b>	62.4	60.1	<b>62.6</b>
# d <b>PSB13NEDH-7-140</b>	65.0	62.2	<b>65.0</b>	<b>61.1</b>	<b>59.7</b>	63.9	<b>63.2</b>	61.9	<b>61.8</b>	<b>62.6</b>
# d <b>WB4575</b>	65.1	<b>64.3</b>	<b>64.8</b>	<b>61.1</b>	53.3	<b>64.9</b>	<b>63.3</b>	<b>64.3</b>	<b>62.2</b>	<b>62.6</b>
# <b>Judee</b>	<b>65.1</b>	63.6	<b>63.8</b>	<b>61.2</b>	58.4	63.9	62.2	<b>63.3</b>	<b>61.0</b>	<b>62.5</b>
# <b>LCS Chrome</b>	64.4	63.0	<b>64.2</b>	60.7	<b>61.0</b>	64.0	<b>63.0</b>	62.1	60.5	<b>62.5</b>
# <b>MT1564</b>	64.7	63.6	<b>63.9</b>	60.1	<b>62.0</b>	63.5	<b>63.0</b>	61.4	60.1	<b>62.5</b>
# <b>SY 517 CL2</b>	<b>65.2</b>	<b>64.1</b>	<b>64.2</b>	60.1	56.0	<b>64.3</b>	<b>63.4</b>	<b>63.0</b>	<b>61.8</b>	<b>62.5</b>
d <b>SY Wolf</b>	64.9	63.4	<b>64.9</b>	<b>61.4</b>	56.4	64.0	<b>62.8</b>	62.9	<b>62.1</b>	<b>62.5</b>
# <b>Long Branch</b>	64.4	63.2	62.3	59.0	<b>62.2</b>	63.4	<b>62.8</b>	<b>63.1</b>	60.8	<b>62.4</b>
#+ <b>07CL046-2 (SY Legend C</b>	64.8	63.2	62.8	60.3	<b>60.8</b>	<b>64.1</b>	<b>63.1</b>	61.5	60.1	<b>62.3</b>
+ d <b>MT1687</b>	64.6	63.1	62.3	60.0	<b>61.6</b>	63.4	<b>63.2</b>	61.9	60.7	<b>62.3</b>
+ <b>MTCS1601</b>	64.6	62.9	<b>64.6</b>	59.3	<b>60.5</b>	63.3	<b>62.8</b>	61.9	60.6	<b>62.3</b>
+ <b>MST1588</b>	64.9	62.7	<b>64.0</b>	59.6	<b>59.8</b>	63.6	62.3	62.7	<b>61.4</b>	<b>62.3</b>
+ d <b>MT16101</b>	64.2	62.5	62.5	60.4	<b>60.0</b>	63.5	62.6	62.5	60.4	<b>62.1</b>
# d <b>WB4614</b>	<b>65.5</b>	62.9	<b>63.6</b>	60.1	57.5	63.9	61.5	<b>62.9</b>	<b>61.3</b>	<b>62.1</b>
# <b>FourOsix</b>	64.4	62.6	62.5	60.1	<b>61.2</b>	63.7	62.1	61.2	60.1	<b>62.0</b>
d <b>MT1547</b>	64.6	62.7	62.3	60.0	<b>62.0</b>	63.2	62.4	61.3	59.6	<b>62.0</b>
# d <b>WB4623CLP</b>	64.0	62.1	61.4	60.5	<b>60.9</b>	63.2	<b>62.9</b>	61.9	<b>61.5</b>	<b>62.0</b>
+ d <b>MT1688</b>	64.6	63.2	61.9	59.2	<b>61.4</b>	63.4	61.9	61.2	59.7	61.8
# <b>MTW1491</b>	64.3	62.4	62.9	60.4	<b>59.5</b>	63.0	<b>62.8</b>	61.4	59.2	61.8
# <b>Warhorse</b>	63.8	62.5	62.5	60.0	<b>61.0</b>	62.5	62.6	60.3	60.7	61.8
+ d <b>MT1695</b>	64.2	62.6	62.3	59.9	<b>61.8</b>	62.5	62.0	61.5	58.8	61.7
# <b>Langin</b>	63.7	63.2	<b>63.4</b>	59.3	58.7	63.0	61.3	61.8	60.0	61.6
# <b>Northern</b>	63.8	62.3	63.2	60.6	56.2	62.8	62.4	62.0	59.8	61.5
# <b>CO13003C (Byrd CL Plus</b>	64.4	63.4	62.6	59.8	55.3	64.0	62.0	61.0	60.2	61.4
d <b>MT1265</b>	63.3	61.7	62.8	60.4	58.6	61.9	61.5	61.6	59.7	61.3
+ <b>MT1683</b>	63.7	61.4	62.1	59.8	<b>59.5</b>	62.5	61.8	61.2	59.5	61.3
# <b>SY Monument</b>	63.6	62.4	61.8	58.7	58.8	63.0	62.3	61.4	58.6	61.2
# d <b>WB4483</b>	64.8	63.0	61.7	58.8	57.6	63.2	60.0	61.9	60.0	61.2
#+ <b>AAC Wildfire</b>	63.9	62.2	61.8	<b>61.0</b>	55.8	61.5	62.7	60.7	59.9	61.1
d <b>MT1563</b>	63.9	62.0	62.5	60.5	56.4	63.1	62.0	60.7	59.0	61.1
+ <b>Loma</b>	63.8	62.6	61.8	59.7	55.4	62.4	61.1	62.6	59.3	61.0
+ d <b>MTF1631</b>	63.3	62.0	62.4	60.5	55.0	62.0	<b>62.9</b>	61.3	59.8	61.0
d <b>Bearpaw</b>	64.8	62.8	63.2	58.7	49.6	63.4	61.8	62.5	<b>61.7</b>	60.9
# <b>Decade</b>	64.2	62.6	62.5	59.7	53.1	62.5	60.9	62.4	59.8	60.9
# <b>Yellowstone</b>	63.8	61.7	62.1	60.0	57.8	62.3	61.5	60.9	58.8	60.9
# <b>SY Clearstone 2CL</b>	63.3	61.4	61.3	59.6	<b>59.1</b>	62.0	61.4	59.9	59.1	60.8
+ d <b>MTV1681</b>	63.5	62.1	62.3	59.5	55.9	61.9	61.4	60.6	58.6	60.6
#+ <b>Incline AX</b>	63.2	62.6	62.7	59.8	52.7	61.2	60.9	61.1	59.0	60.4
d <b>MTF1435</b>	62.7	60.6	60.5	60.0	56.5	61.2	61.7	61.0	59.4	60.4
+ <b>MT1642</b>	63.5	60.6	61.5	59.4	54.3	61.2	61.6	60.6	58.5	60.1
# <b>LCS Jet</b>	62.3	60.7	57.0	58.1	<b>59.0</b>	59.5	61.5	60.3	57.5	59.5
# <b>Ray</b>	61.7	59.8	60.5	57.8	53.9	59.7	61.0	60.0	58.1	59.2
#+ d <b>NSA10-2196<sup>1/</sup></b>	61.4	60.5	.	56.8	58.7	60.5	58.6	60.2	55.5	<b>59.0</b>
#+ <b>LWW14-73915 (LCS Zoo</b>	61.9	60.9	54.8	56.2	<b>59.6</b>	60.0	60.2	60.1	55.0	58.7
<b>Average</b>	<b>64.1</b>	<b>62.5</b>	<b>62.6</b>	<b>59.8</b>	<b>58.4</b>	<b>62.8</b>	<b>62.1</b>	<b>61.7</b>	<b>59.9</b>	<b>61.6</b>
<b>LSD (0.05)</b>	<b>0.4</b>	<b>0.4</b>	<b>1.7</b>	<b>0.6</b>	<b>3.4</b>	<b>0.8</b>	<b>0.7</b>	<b>1.4</b>	<b>1.6</b>	<b>1.1</b>
<b>C. V. (%)</b>	<b>0.4</b>	<b>0.4</b>	<b>1.4</b>	<b>0.7</b>	<b>3.6</b>	<b>0.8</b>	<b>0.7</b>	<b>1.4</b>	<b>1.6</b>	<b>1.9</b>
<b>P-value (Varieties)</b>	<b>0.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>

+ = new for 2018, # = paid entry

d = cultivars/lines dropped for 2019 test

**bold** = indicates highest value within a column

<sup>1/</sup> = not in overall statistics, due to no value at Sidney

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



**Table 13. 2018 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Heading Date (days from Jan. 1)**

Cultivar/Line	Bozeman LAT	Havre RCB	Sidney RCB	Williston RCB	Kalispell LAT	Moccasin RCB	Huntley RCB	Conrad LAT	Ft. Benton	8 Loc Avg.
lattice efficiency	109%				125%			107%		
# <b>Langin</b>	158.9	153.6	155.0	151.1	151.2	158.7	153.0	152.4		154.2
<b>Brawl CLP</b>	159.06	153.7	156.0	150.9	151.9	160.7	153.0	152.5		154.7
# <b>Long Branch</b>	157.8	154.3	156.5	152.0	153.6	158.3	153.7	152.7		154.9
# <b>SY 517 CL2</b>	159.6	154.6	155.5	151.4	151.3	162.0	153.0	152.3		155.0
<b>MT1564</b>	161.7	156.0	157.0	152.3	154.4	160.7	154.3	156.0		156.6
#+ d <b>LCS Link</b>	161.4	156.7	156.5	153.8	155.3	162.0	154.0	155.0		156.8
d <b>SY Wolf</b>	161.67	155.7	157.0	152.4	153.7	162.0	154.7	158.0		156.9
# <b>CO13003C (Byrd CL Plus)</b>	162.7	154.9	158.0	152.1	154.9	162.0	155.7	155.5		157.0
+ <b>Oahe</b>	163.0	155.4	157.0	152.8	156.0	162.0	157.0	155.5		157.3
# <b>SY Sunrise</b>	162.1	156.6	157.0	152.3	158.2	162.0	155.3	154.6		157.3
+ d <b>MT1688</b>	162.2	156.0	157.0	154.2	155.2	160.3	157.3	157.5		157.5
+ d <b>MT1695</b>	162.1	156.1	159.5	152.6	154.8	163.0	157.3	156.1		157.7
#+ <b>07CL046-2 (SY Legend CL</b>	163.4	156.0	159.5	153.3	156.0	162.0	155.7	156.4		157.8
+ d <b>MT1687</b>	162.9	156.0	156.5	154.3	156.9	162.0	157.7	157.6		158.0
# <b>LCS Chrome</b>	162.0	158.6	157.5	154.7	155.1	163.0	157.3	156.2		158.1
#+ <b>LWW14-73915 (LCS Zoom</b>	162.2	156.3	160.0	154.2	158.7	163.0	156.3	154.8		158.2
# <b>SY Monument</b>	162.0	158.0	158.5	154.3	156.1	164.0	157.0	157.3		158.4
# d <b>PSB13NEDH-7-140</b>	165.0	156.7	158.0	152.7	157.6	163.3	158.0	157.6		158.6
+ d <b>MT16101</b>	163.5	156.0	162.0	153.4	158.1	164.0	157.0	156.4		158.8
<b>Decade</b>	164.74	158.4	157.5	154.0	157.6	165.0	158.0	158.6		159.2
#+ <b>Incline AX</b>	164.8	157.7	160.0	155.7	158.2	167.0	157.7	157.1		159.8
<b>FourOsix</b>	165.6	158.0	160.0	155.0	159.2	165.0	158.3	158.8		160.0
#+ d <b>NSA10-2196</b>	162.9	159.0	162.0	156.7	157.4	167.0	158.0	159.4		160.3
d <b>MT1547</b>	165.3	158.6	160.0	154.9	158.0	167.0	159.3	159.7		160.4
d <b>Bearpaw</b>	165.17	160.0	162.0	154.8	157.4	167.0	158.3	159.1		160.5
<b>Judee</b>	165.87	158.9	160.0	155.4	158.9	166.0	159.0	160.1		160.5
# d <b>WB4575</b>	166.8	158.6	159.0	155.1	158.8	167.3	159.0	160.4		160.6
+ <b>MTCS1601</b>	165.9	159.3	160.0	156.0	159.4	165.7	159.0	160.3		160.7
# <b>Keldin</b>	165.4	159.4	160.0	155.9	158.7	167.0	159.7	160.9		160.9
+ d <b>MTV1681</b>	165.9	158.7	160.0	155.3	157.9	169.0	159.7	160.6		160.9
# d <b>WB4614</b>	166.3	160.7	161.0	157.0	157.5	165.0	160.0	161.4		161.1
# d <b>WB4623CLP</b>	165.6	160.0	164.5	156.3	158.8	167.3	158.3	160.2		161.4
<b>MTW1491</b>	167.3	159.7	161.0	156.7	160.0	167.3	161.0	161.7		161.8
# <b>LCS Jet</b>	165.7	160.4	163.0	156.7	158.0	171.0	158.3	161.7		161.9
+ <b>MT1683</b>	166.5	159.7	162.0	156.3	159.9	166.0	161.3	163.4		161.9
<b>Warhorse</b>	167.31	159.9	162.0	157.4	160.9	167.7	160.3	160.0		161.9
<b>MTS1588</b>	167.3	160.0	162.0	156.7	159.1	169.3	160.3	160.9		162.0
d <b>MT1563</b>	167.3	161.0	160.0	157.0	160.5	169.3	160.7	163.5		162.4
+ d <b>MTF1631</b>	168.1	160.3	161.0	157.0	159.0	171.0	161.0	161.7		162.4
<b>Yellowstone</b>	167.33	161.0	162.0	157.0	161.1	169.0	161.0	163.4		162.7
<b>SY Clearstone 2CL</b>	167.19	160.7	162.5	156.9	160.0	171.0	160.7	163.6		162.8
<b>Northern</b>	167.3	160.0	161.5	157.1	161.2	171.0	162.0	162.9		162.9
# d <b>WB4483</b>	168.2	161.7	162.0	157.7	160.9	169.3	161.7	162.0		162.9
<b>Loma</b>	168.4	162.6	162.5	157.7	159.6	171.0	162.0	162.9		163.3
d <b>MT1265</b>	168.2	162.3	162.0	157.0	161.1	171.0	161.7	164.5		163.5
d <b>MTF1435</b>	168.0	161.4	162.5	157.7	160.9	171.7	161.7	164.0		163.5
+ <b>MT1642</b>	170.4	164.4	163.0	159.6	161.8	171.0	162.7	164.1		164.6
#+ <b>AAC Wildfire</b>	170.6	163.0	162.5	159.7	161.0	172.3	162.7	166.0		164.7
<b>Ray</b>	170.8	162.7	162.5	159.3	163.6	172.0	162.7	165.3		164.9
<b>Average</b>	164.9	158.6	159.9	155.2	157.9	165.9	158.4	159.2		160.0
<b>LSD (0.05)</b>	1.1	1.6	2.6	1.5	2.8	3.5	1.2	2.1		1.1
<b>C. V. (%)</b>	0.4	0.6	0.8	0.6	1.0	1.3	0.5	0.8		0.7
<b>P-value (Varieties)</b>	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001		<.0001

+ = new for 2018, # = paid entry

d = cultivars/lines dropped for 2019 test

**bold** = indicates highest value within a column

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

**Table 14. 2018 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Plant Height (in)**

Cultivar/Line	Bozeman RCB	Havre RCB	Sidney RCB	Williston RCB	Kalispell LAT	Moccasin RCB	Huntley RCB	Conrad LAT	Ft. Benton 1 rep	9 Loc Avg.
lattice efficiency					116%			111%		
# <b>SY Sunrise</b>	30.5	21.3	24.0	20.5	32.3	23.0	36.3	22.3	24	26.0
# <b>LCS Jet</b>	32.1	21.8	21.7	20.5	34.5	26.0	36.9	24.8	29	27.5
# <b>Long Branch</b>	34.1	23.6	24.0	20.8	34.0	24.7	38.0	23.7	28	27.9
# <b>Langin</b>	33.6	22.4	25.8	23.0	37.2	24.7	37.6	24.0	24	28.0
#+ <b>LWW14-73915 (LCS Zoom)</b>	32.2	23.2	23.8	21.8	33.1	27.0	37.5	24.2	30	28.1
#+ d <b>NSA10-2196</b>	34.1	23.7	22.8	21.3	35.1	26.3	36.4	24.8	28	28.1
d <b>SY Wolf</b>	34.0	23.8	25.4	21.6	33.0	26.3	36.9	25.5	26	28.1
<b>MTS1588</b>	33.4	22.2	24.2	22.4	34.5	27.3	36.3	25.3	29	28.3
#+ <b>07CL046-2 (SY Legend CL)</b>	33.7	24.7	26.0	23.6	30.1	26.3	37.1	24.9	30	28.5
<b>Brawl CLP</b>	33.5	27.2	24.2	21.6	33.4	26.0	39.1	26.6	26	28.6
# <b>SY 517 CL2</b>	33.1	25.2	25.0	21.4	36.1	26.3	39.1	23.8	27	28.6
#+ d <b>LCS Link</b>	34.0	24.3	25.8	23.3	34.6	27.3	37.7	24.3	27	28.7
# <b>SY Monument</b>	34.6	24.2	25.2	22.3	36.3	28.3	38.5	23.8	29	29.1
# d <b>WB4575</b>	35.9	23.3	26.6	23.1	35.7	27.0	37.7	25.9	27	29.1
# d <b>WB4623CLP</b>	35.0	22.7	22.6	22.9	36.2	29.7	40.3	25.8	27	29.1
<b>Loma</b>	35.1	23.4	26.6	21.4	37.2	27.7	34.6	26.8	30	29.2
+ d <b>MT1688</b>	34.5	26.2	27.8	23.4	33.4	26.7	37.9	24.6	29	29.3
# d <b>WB4614</b>	35.0	23.7	23.4	23.2	34.7	28.3	39.2	28.2	30	29.5
#+ <b>Incline AX</b>	35.8	25.0	25.0	22.9	34.5	29.7	38.9	26.4	28	29.6
+ d <b>MT1695</b>	37.2	26.5	24.8	23.5	35.6	29.3	39.2	25.4	25	29.6
<b>FourOsix</b>	33.6	25.1	26.6	21.8	37.3	29.0	38.6	25.3	30	29.7
+ d <b>MT1687</b>	35.2	26.4	26.0	24.4	33.0	30.0	39.8	26.7	27	29.8
<b>Warhorse</b>	36.4	23.3	27.2	24.1	35.6	28.3	37.7	26.0	30	29.8
d <b>Bearpaw</b>	36.9	21.7	26.4	21.0	37.8	28.3	40.0	26.5	32	30.1
<b>MT1564</b>	36.1	26.9	24.6	23.5	37.7	26.7	40.7	26.4	28	30.1
# d <b>WB4483</b>	36.1	24.2	28.0	21.4	35.2	28.0	38.2	26.4	33	30.1
d <b>MT1547</b>	35.3	25.9	27.6	22.8	37.3	30.0	39.6	27.0	28	30.4
# <b>LCS Chrome</b>	36.6	23.5	27.8	23.1	37.2	28.3	40.2	26.7	32	30.6
# <b>Keldin</b>	35.0	25.4	29.1	23.9	37.7	28.7	40.4	25.8	32	30.9
+ <b>MTCS1601</b>	37.4	25.1	27.8	24.0	35.4	29.7	38.5	28.0	33	31.0
<b>Northern</b>	38.2	24.3	27.8	21.5	37.0	29.7	40.7	26.0	34	31.0
+ d <b>MTV1681</b>	38.5	25.6	27.8	23.5	37.3	31.0	40.7	25.3	30	31.1
<b>Judee</b>	37.0	24.6	27.6	23.9	39.1	29.7	40.8	27.7	30	31.2
<b>Decade</b>	38.0	25.8	25.8	24.0	39.5	31.0	41.4	26.2	31	31.4
+ d <b>MT16101</b>	37.4	26.0	27.8	23.5	38.7	30.7	40.9	27.7	31	31.5
# <b>CO13003C (Byrd CL Plus)</b>	36.9	25.0	27.8	25.6	38.5	30.3	44.8	27.3	33	32.1
+ <b>MT1642</b>	37.1	27.2	29.7	23.9	35.3	32.0	41.9	29.7	32	32.1
# d <b>PSB13NEDH-7-140</b>	39.0	26.0	30.1	25.6	41.2	29.0	41.8	27.2	29	32.1
<b>MTW1491</b>	40.0	25.9	27.6	22.9	39.4	31.0	42.3	30.4	30	32.2
<b>Yellowstone</b>	39.0	26.8	28.3	26.4	36.6	31.7	41.3	29.9	33	32.6
d <b>MT1563</b>	40.1	25.8	26.6	25.5	39.2	30.7	41.9	30.8	35	32.8
+ <b>MT1683</b>	39.4	26.2	29.5	24.4	41.7	32.0	40.8	29.1	32	32.8
d <b>MT1265</b>	40.1	23.5	30.3	25.2	39.3	32.0	43.7	30.2	34	33.1
+ <b>Oahe</b>	40.4	26.8	28.1	24.4	41.1	30.3	46.9	27.3	33	33.1
#+ <b>AAC Wildfire</b>	39.3	25.3	29.1	22.9	42.7	33.0	40.6	31.2	37	33.5
<b>SY Clearstone 2CL</b>	40.2	27.5	30.1	25.6	44.0	32.0	42.3	30.7	34	34.0
<b>Ray</b>	43.6	29.9	32.1	24.7	41.0	37.3	46.3	31.8	36	35.9
+ d <b>MTF1631</b>	45.0	29.1	33.5	27.9	43.0	37.3	47.3	32.4	39	37.2
d <b>MTF1435</b>	45.3	32.1	31.3	27.7	43.1	38.3	52.8	33.1	41	38.3
<b>Average</b>	<b>36.6</b>	<b>25.1</b>	<b>26.9</b>	<b>23.3</b>	<b>37.0</b>	<b>29.3</b>	<b>40.2</b>	<b>26.9</b>	<b>30.4</b>	<b>30.6</b>
<b>LSD (0.05)</b>	<b>1.4</b>	<b>2.2</b>	<b>3.2</b>	<b>2.6</b>	<b>3.9</b>	<b>2.2</b>	<b>3.3</b>	<b>3.3</b>		<b>1.4</b>
<b>C. V. (%)</b>	<b>2.2</b>	<b>5.3</b>	<b>5.9</b>	<b>6.8</b>	<b>6.1</b>	<b>4.6</b>	<b>5.0</b>	<b>7.1</b>		<b>4.9</b>
<b>P-value (Varieties)</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>		<b>&lt;.0001</b>

+ = new for 2018, # = paid entry

d = cultivars/lines dropped for 2019 test

**bold** = indicates highest value within a column

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

Table 15. 2018 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Sawfly Cutting (%)

Cultivar/Line	Havre LAT	Conrad RCB	Ft. Benton 1 rep	3 Loc Avg.
lattice efficiency	130%			
<b>Warhorse</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>1</b>
<b>MTS1588</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>2</b>
d SY Wolf	4	9	18	10
#+ AAC Wildfire	6	19	7	11
Loma	4	11	18	11
d Bearpaw	2	8	25	12
Judee	5	9	30	15
# d WB4483	3	14	27	15
# d WB4575	2	11	32	15
#+ 07CL046-2 (SY Legend CL2)	7	12	33	17
+ MTCS1601	4	9	40	18
# SY 517 CL2	2	9	43	18
Decade	4	12	38	18
Brawl CLP	7	10	38	18
# d WB4614	7	13	38	19
#+ Incline AX	3	15	43	20
# d WB4623CLP	7	32	23	21
+ MT1642	13	11	40	21
Northern	4	17	43	21
# SY Sunrise	3	30	35	23
# LCS Jet	5	18	47	23
d MTF1435	7	16	47	23
#+ d LCS Link	7	11	53	24
# CO13003C (Byrd CL Plus)	4	21	47	24
# Long Branch	4	17	53	25
Ray	15	22	43	27
# Keldin	7	27	47	27
# d PSB13NEDH-7-140	5	17	60	27
+ d MTF1631	8	22	53	28
+ d MTV1681	4	24	57	29
# Langin	2	11	75	29
+ Oahe	3	21	67	30
# SY Monument	3	29	60	31
+ d MT16101	2	12	80	31
d MT1563	9	20	70	33
MT1564	2	15	85	34
+ d MT1688	7	23	72	34
+ d MT1687	9	16	78	34
FourOsix	4	29	73	35
d MT1265	13	21	72	35
MTW1491	11	14	83	36
# LCS Chrome	8	42	63	38
+ d MT1695	6	15	92	38
SY Clearstone 2CL	11	18	88	39
d MT1547	4	24	90	39
Yellowstone	8	20	92	40
+ MT1683	8	26	92	42
#+ LWW14-73915 (LCS Zoom)	7	40	80	42
#+ d NSA10-2196	8	33	87	42
<b>Average</b>	<b>5.7</b>	<b>17.9</b>	<b>52.7</b>	<b>25.4</b>
<b>LSD (0.05)</b>	<b>5.7</b>	<b>13.0</b>	<b>22.7</b>	<b>22.6</b>
<b>C. V. (%)</b>	<b>6.4</b>	<b>43.4</b>	<b>26.6</b>	<b>54.9</b>
<b>P-value (Varieties)</b>	<b>0.0036</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>0.0163</b>

+ = new for 2018, # = paid entry

**bold** = indicates highest value within a column

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

**Table 16. 2018 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Grain Protein (%)**

Cultivar/Line	Bozeman Bulk	Havre LAT	Sidney RCB	Williston LAT	Kalispell LAT	Moccasin RCB	Huntley bulk	Conrad RCB	Ft. Benton bulk	9 Loc Avg.
lattice efficiency		110%		118%	138%					
# d <b>WB4623CLP</b>	13.7	14.8	<b>14.2</b>	<b>14.8</b>	12.5	<b>12.8</b>	13.3	14.3	12.9	<b>13.7</b>
d <b>Bearpaw</b>	12.6	14.9	11.7	<b>14.6</b>	<b>13.9</b>	<b>12.8</b>	13.0	<b>15.7</b>	11.9	<b>13.5</b>
# d <b>PSB13NEDH-7-140</b>	13.7	<b>16.1</b>	11.6	<b>14.7</b>	11.6	<b>13.5</b>	12.6	14.8	12.3	<b>13.4</b>
<b>Warhorse</b>	13.0	14.9	11.8	<b>14.4</b>	12.5	12.6	13.4	<b>15.0</b>	12.6	<b>13.4</b>
<b>Judee</b>	12.2	<b>15.5</b>	11.8	<b>14.3</b>	<b>13.2</b>	<b>12.7</b>	12.7	<b>15.2</b>	12.4	<b>13.3</b>
+ d <b>MT1687</b>	13.5	14.4	11.5	13.9	12.8	12.5	12.6	<b>15.3</b>	12.2	13.2
<b>Brawl CLP</b>	13.5	14.0	12.2	14.0	12.2	<b>13.6</b>	12.8	13.1	12.3	13.1
+ d <b>MT1688</b>	13.6	14.4	11.0	13.7	12.4	<b>12.8</b>	12.7	<b>15.1</b>	12.4	13.1
# d <b>WB4575</b>	12.5	14.6	12.0	14.3	12.4	<b>13.0</b>	12.3	14.2	12.2	13.1
# <b>LCS Chrome</b>	13.2	14.6	11.4	13.7	11.8	<b>13.0</b>	12.6	14.3	12.0	13.0
+ d <b>MTF1631</b>	13.2	14.4	11.5	14.0	12.1	12.0	13.7	13.7	12.5	13.0
# d <b>WB4483</b>	11.6	14.8	12.2	<b>14.6</b>	12.3	11.5	13.2	14.7	12.2	13.0
<b>Decade</b>	12.5	14.7	10.9	14.0	11.5	<b>13.0</b>	12.2	14.9	12.5	12.9
<b>Loma</b>	12.0	14.4	12.1	13.9	12.3	11.8	12.4	14.9	12.3	12.9
+ d <b>MT16101</b>	12.5	14.5	12.6	14.1	12.0	11.9	12.1	13.9	12.1	12.9
+ <b>MT1642</b>	12.1	15.3	12.0	14.0	11.6	11.8	12.8	14.7	12.2	12.9
+ d <b>MTV1681</b>	12.6	14.1	11.1	14.0	11.8	12.4	12.5	14.8	12.6	12.9
+ <b>MTCS1601</b>	12.7	14.7	9.5	14.1	12.7	12.6	13.2	13.7	12.4	12.8
<b>Northern</b>	12.1	14.2	11.1	14.2	12.2	12.2	12.3	14.5	12.1	12.8
<b>FourOsix</b>	11.9	14.9	10.7	13.9	11.2	12.6	12.5	14.0	12.2	12.7
d <b>MTF1435</b>	12.6	14.2	10.8	13.4	12.1	12.3	13.2	13.8	12.2	12.7
d <b>MTS1588</b>	12.0	14.3	10.8	<b>14.4</b>	12.0	11.8	12.8	14.5	11.6	12.7
<b>Ray</b>	12.5	14.3	11.0	13.9	11.6	11.6	13.1	13.8	12.2	12.7
d <b>SY Wolf</b>	12.5	14.2	10.6	13.5	12.2	<b>12.7</b>	12.7	14.0	11.8	12.7
#+ <b>07CL046-2 (SY Legend CL</b>	12.0	14.0	11.6	13.6	12.0	<b>13.2</b>	12.0	13.4	11.8	12.6
#+ <b>AAC Wildfire</b>	12.4	13.8	10.5	13.8	11.9	11.8	12.8	13.7	12.3	12.6
#+ d <b>LCS Link</b>	12.5	14.9	11.1	13.4	11.6	12.4	11.8	14.6	11.2	12.6
d <b>MT1547</b>	12.2	14.1	10.5	14.0	11.1	12.1	12.2	14.1	12.8	12.6
+ d <b>MT1695</b>	11.9	13.9	12.2	13.1	11.1	12.4	11.8	14.6	12.1	12.6
+ <b>Oahe</b>	12.9	14.3	11.4	13.0	12.0	12.3	12.3	13.3	11.5	12.6
<b>SY Clearstone 2CL</b>	12.3	14.3	11.5	13.9	11.0	11.6	12.5	14.0	12.3	12.6
d <b>MT1265</b>	12.2	14.5	10.9	14.0	11.1	11.5	12.5	14.4	11.7	12.5
<b>MT1564</b>	12.1	13.8	10.6	13.4	11.2	12.2	11.8	<b>15.2</b>	11.8	12.5
+ <b>MT1683</b>	12.2	14.6	10.8	13.3	11.5	11.9	12.3	14.5	11.7	12.5
# <b>SY 517 CL2</b>	12.6	14.1	11.0	13.4	11.6	12.6	11.8	12.8	12.3	12.5
# d <b>WB4614</b>	11.8	14.7	10.1	14.2	11.7	11.6	12.5	13.9	11.9	12.5
<b>Yellowstone</b>	11.9	14.2	10.4	13.8	11.0	11.7	12.5	14.6	12.1	12.5
# <b>LCS Jet</b>	11.9	13.8	<b>12.8</b>	13.5	10.2	11.2	12.6	13.8	11.9	12.4
#+ <b>LWW14-73915 (LCS Zoom</b>	11.8	13.8	12.4	13.3	11.4	11.5	12.0	12.8	12.0	12.3
<b>MTW1491</b>	11.9	14.0	11.0	13.2	11.4	11.1	12.1	14.1	11.9	12.3
# <b>Keldin</b>	12.1	13.7	10.2	12.8	11.2	12.1	11.7	13.8	11.9	12.2
d <b>MT1563</b>	12.1	14.0	9.2	13.0	11.3	11.3	12.2	14.3	12.3	12.2
#+ d <b>NSA10-2196</b>	11.1	13.3	12.6	12.5	10.7	11.6	11.8	13.3	11.6	12.1
# <b>SY Sunrise</b>	12.8	12.8	10.6	12.9	11.7	12.3	11.2	12.8	11.6	12.1
# <b>SY Monument</b>	11.8	13.0	9.6	12.4	11.6	11.7	12.0	13.1	11.5	11.9
# <b>CO13003C (Byrd CL Plus)</b>	11.2	12.6	9.8	12.5	11.8	11.5	11.6	12.9	11.6	11.7
#+ <b>Incline AX</b>	11.2	12.5	10.8	12.8	11.4	11.5	11.3	11.9	11.5	11.7
# <b>Long Branch</b>	12.0	12.2	10.3	12.5	11.4	12.0	11.3	13.1	10.9	11.7
# <b>Langin</b>	11.1	12.9	9.6	12.0	11.5	11.4	11.5	12.3	11.0	11.5
<b>Average</b>	<b>12.3</b>	<b>14.2</b>	<b>11.2</b>	<b>13.6</b>	<b>11.8</b>	<b>12.2</b>	<b>12.4</b>	<b>14.0</b>	<b>12.0</b>	<b>12.6</b>
<b>LSD (0.05)</b>		<b>0.7</b>	<b>1.5</b>	<b>0.5</b>	<b>0.7</b>	<b>0.9</b>		<b>0.8</b>		<b>0.5</b>
<b>C. V. (%)</b>		<b>2.7</b>	<b>6.8</b>	<b>2.2</b>	<b>3.6</b>	<b>4.4</b>		<b>3.2</b>		<b>4.2</b>
<b>P-value (Varieties)</b>		<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>		<b>&lt;.0001</b>		<b>&lt;.0001</b>

+ = new for 2018, # = paid entry

d = cultivars/lines dropped for 2019 test

**bold** = indicates highest value within a column

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

**Table 17. 2018 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Stem Solidness (5-25)**

Cultivar/Line		Bozeman	Conrad	Havre	Moccasin	Northern Seeds - Carter	5 Loc Average
stem clipping date		28-Jun	26-Jun	6-Jul	5-Jul	2-Jul	
% sawfly Infestation		0%	4%	-	1%	-	
<b>MTS1588</b>	MT0598/98X366E29-1	<b>24.8</b>	<b>24.9</b>	<b>24.5</b>	<b>23.4</b>	<b>23.4</b>	<b>24.2</b>
<b>Judee</b>	Montana, 2011	22.7	<b>24.2</b>	<b>22.8</b>	<b>24.4</b>	<b>22.5</b>	<b>23.3</b>
<b>Warhorse</b>	Montana, 2013	<b>23.0</b>	<b>24.5</b>	<b>23.7</b>	<b>22.3</b>	19.9	22.7
<b>Bearpaw</b>	Montana, 2011	<b>23.3</b>	<b>23.4</b>	<b>24.2</b>	21.0	<b>21.1</b>	22.6
<b>Loma</b>	Montana, 2016	<b>23.1</b>	<b>24.5</b>	<b>23.8</b>	20.6	19.4	22.3
+ <b>MTCS1601</b>	MTS0531/7/MTS0532/6/96X17E69/3/	21.5	21.9	<b>22.4</b>	19.9	17.7	20.7
<b>WB4483</b>	WestBred, 2016	20.7	<b>23.4</b>	17.8	18.7	15.9	19.3
<b>Yellowstone</b>	Montana, 2005 (hollow check)	6.3	6.3	6.4	5.7	5.2	6.0
<b>Average</b>		<b>20.7</b>	<b>21.6</b>	<b>20.7</b>	<b>19.5</b>	<b>18.1</b>	<b>20.1</b>
<b>LSD (0.05)</b>		<b>2.0</b>	<b>1.9</b>	<b>2.6</b>	<b>2.5</b>	<b>2.5</b>	<b>1.5</b>
<b>C. V. (%)</b>		<b>5.5</b>	<b>5.0</b>	<b>7.2</b>	<b>7.3</b>	<b>8.0</b>	<b>5.6</b>
<b>P-value (Varieties)</b>		<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>

+ = new for 2018, # = paid entry

**bold** = indicates highest value within a column

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

**Table 18. 2018 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Stripe Rust Evaluation, including data from Pullman and Mt. Vernon, WA**

Cultivar/Line	Stripe Rust							
	Montana (%)		Pullman, WA		MT. Vernon, WA			
	Kalispell	Bozeman	Milk	Stem elong.	Heading/flowering			
d = cultivars/lines dropped + = new for 2018, # = paid entry	10-Jun	27-Jul	IT <sup>1/</sup>	%	IT <sup>1/</sup>	%		
	no 'late' evaluation	little occurrence	7-Jun		26-Apr		6-Jun	
#+ 07CL046-2 (SY Legend)	0		5	1	3	40	5	60
#+ AAC Wildfire	0		5	20	5	40	5	60
d Bearpaw	7		8	50	3	40	5	80
Brawl CLP	3	tr	8	100	6	50	8	80
# CO13003C (Byrd CLP)	14		8	100	5	40	5	60
Decade	8	5	8	100	4	40	6	80
FourOsix	0		5	5	4	20	3	5
#+ Incline AX	3	tr	8	100	3	20	8	80
Judee	0		5	10	3	20	3	20
# Keldin	0		5	10	3	30	4	30
# Langin	0		8	10	2	10	3	10
# LCS Chrome	0		2	1	7	60	7	80
# LCS Jet	1		2	1	3	30	3	10
#+ d LCS Link	1		5	20	7	40	3	20
Loma	0		8	10	2	20	3	10
# Long Branch	0		2	2	2	20	2	10
#+ LWW14-73915 (LCS Z)	0		2	1	2	20	2	5
d MT1265	0		3	5	2	20	3	10
d MT1547	0		2	2	3	20	3	20
d MT1563	0		5	10	3	40	3	20
MT1564	0		8	1	3	40	5	60
+ d MT16101	0		2	1	3	20	2	5
+ MT1642	0		2	2	6	40	3	10
+ MT1683	0		5	5	3	20	2	10
+ d MT1687	0		2	1	2	20	2	5
+ d MT1688	0		2	1	2	30	2	20
+ d MT1695	0		2	1	3	30	2	10
+ MTCS1601	1		2	10	3	20	3	20
d MTF1435	0		5	10	3	20	3	20
+ d MTF1631	0		3	5	2	30	2	20
MTS1588	0		2	10	3	40	3	20
+ d MTV1681	1		5	10	3	30	3	15
MTW1491	1		5	2	3	20	3	20
Northern	0		5	10	3	20	3	20
#+ d NSA10-2196	0	tr	2	1	2	30	2	5
+ Oahe	1		2	2	2	30	2	5
# d PSB13NEDH-7-14	0		2	1	8	60	7	70
Ray	0		5	10	3	20	3	20
# SY 517 CL2	7	5	8	100	3	30	8	80
SY Clearstone 2C	0		5	10	3	20	3	20
# SY Monument	0		3	5	2	20	2	20
# SY Sunrise	0		3	10	2	30	3	30
d SY Wolf	0		8	10	4	30	3	10
Warhorse	0		8	5	2	20	3	20
# d WB4483	7		8	60	2	20	4	30
# d WB4575	15	13	8	100	2	20	8	80
# d WB4614	2		5	5	2	20	3	30
# d WB4623CLP	0		2	5	3	30	3	20
Yellowstone	0		5	10	2	20	3	20
<b>Average</b>	<b>1.5</b>			<b>20</b>		<b>29</b>		<b>30</b>
<b>LSD (0.05)</b>								

<sup>1/</sup> Infection Type (IT) was recorded based on the 0-9 scale with ITs 8 and 9 combined as 8 (the most susceptible reaction) in field data. Generally 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.

**bold** = indicates highest value within a column

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

**Table 19. 2018 Winter Wheat Quality Drill Strips, Northern Agricultural Research Center**

Entry	ID	Yield*	Test Weight	Moisture	Protein	Head Date	Plant Ht	Sawfly
		bu/ac	lb/bu	%	%	day	in	% cut
1	Yellowstone	56.6	61.5	10.3	14.5	6/9/18	27.2	4.7
2	MT1547	55.8	62.2	10.1	14.8	6/5/18	26.1	4.5
3	MT1563	58.8	61.7	10.4	14.0	6/8/18	27.4	3.2
4	MT1564	54.4	63.6	9.8	14.0	6/4/18	27.8	3.2
5	MTS1588	60.7	62.8	9.7	14.6	6/7/18	23.6	0.3
6	MTCS1601	60.0	62.7	9.8	14.3	6/7/18	26.5	1.0

\*Yield adjusted to 13% moisture.

Seeded September 21, 2017

Harvested July 24, 2018

Precipitation:

Seeding to Harvest: 11.39"

April 1 to June 30: 3.84"

Table 20. 2015-2018 Intrastate Winter Wheat Test (Exp. 3501): Bozeman Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bushels/acre)				Test Weight (lb/bu)				Protein (%)			
	2018	2017-18	2016-18	2015-18	2018	2017-18	2016-18	2015-18	2018	2017-18	2016-18	2015-18
	1y	2y	3y	4y	1y	2y	3y	4y	1y	2y	3y	4y
#+ 07CL046-2 (SY Legend CL2)	117.1				64.8				12.0			
#+ AAC Wildfire	135.3				63.9				12.4			
Bearpaw	116.1	81.1	69.7	62.8	64.8	61.4	61.2	59.2	12.6	13.2	13.6	<b>14.8</b>
Brawl CLP	115.3	89.0	86.4	82.7	<b>65.3</b>	60.8	60.9	59.8	13.5	13.5	13.6	<b>14.5</b>
# CO13003C (Byrd CL Plus)	135.5	99.0			64.4	60.4			11.2	11.9		
Decade	129.3	86.0	74.4	67.4	64.2	60.3	60.0	58.1	12.5	12.9	13.1	<b>14.4</b>
FourOsix	134.4	<b>119.5</b>	<b>109.1</b>		64.4	62.8	61.9		11.9	12.6	13.1	
#+ Incline AX	131.5				63.2				11.2			
Judee	128.2	<b>109.1</b>	95.5	87.8	<b>65.1</b>	62.9	61.8	60.4	12.2	12.9	13.4	13.7
# Keldin	<b>144.6</b>	<b>121.2</b>	<b>109.3</b>	<b>103.2</b>	64.6	62.4	61.4	59.7	12.1	12.4	12.6	<b>14.0</b>
# Langin	<b>140.3</b>	<b>109.7</b>			63.7	60.5			11.1	11.6		
# LCS Chrome	115.7	<b>111.5</b>			64.4	62.8			13.2	13.3		
# LCS Jet	<b>145.4</b>	<b>135.0</b>			62.3	60.7			11.9	12.7		
#+ LCS Link	134.5				<b>65.2</b>				12.5			
Loma	<b>139.7</b>	<b>117.8</b>	<b>109.2</b>	<b>104.4</b>	63.8	62.1	61.7	<b>60.9</b>	12.0	12.5	12.1	13.0
# Long Branch	134.8	<b>122.3</b>			64.4	62.9			12.0	12.0		
#+ LWW14-73915 (LCS Zoom)	<b>139.9</b>				61.9				11.8			
MT1265	<b>146.6</b>	<b>127.6</b>	<b>120.3</b>	<b>110.8</b>	63.3	61.7	61.5	60.3	12.2	12.4	12.4	13.3
MT1547	132.9	<b>117.9</b>			64.6	63.0			12.2	12.9		
MT1563	<b>142.6</b>	<b>119.6</b>			63.9	61.7			12.1	12.5		
MT1564	130.5	<b>124.6</b>			64.7	63.9			12.1	12.4		
+ MT16101	131.0				64.2				12.5			
+ MT1642	<b>140.3</b>				63.5				12.1			
+ MT1683	<b>141.6</b>				63.7				12.2			
+ MT1687	124.3				64.6				13.5			
+ MT1688	128.0				64.6				13.6			
+ MT1695	132.5				64.2				11.9			
+ MTCS1601	135.3				64.6				12.7			
MTF1435	117.8	<b>109.3</b>			62.7	62.2			12.6	12.7		
+ MTF1631	122.6				63.3				13.2			
MTS1588	134.5	<b>112.9</b>			64.9	62.7			12.0	12.9		
+ MTV1681	<b>145.2</b>				63.5				12.6			
MTW1491	<b>150.2</b>	<b>132.9</b>	<b>124.6</b>		64.3	63.4	63.0		11.9	12.1	12.3	
Northern	<b>147.8</b>	<b>119.1</b>	<b>107.4</b>	<b>101.4</b>	63.8	61.2	60.6	59.8	12.1	12.8	13.3	<b>14.2</b>
#+ NSA10-2196	138.4				61.4				11.1			
+ Oahe	120.7				65.1				12.9			
# PSB13NEDH-7-140	124.7	<b>107.5</b>			65.0	63.3			13.7	13.5		
Ray	138.5	<b>123.0</b>			61.7	60.3			12.5	12.6		
# SY 517 CL2	113.7	96.4			<b>65.2</b>	62.2			12.6	12.7		
SY Clearstone 2CL	<b>142.4</b>	<b>120.7</b>	<b>110.5</b>	<b>103.5</b>	63.3	60.9	60.2	58.9	12.3	12.3	12.5	13.6
# SY Monument	136.7	<b>118.0</b>	<b>109.6</b>	<b>103.7</b>	63.6	60.8	59.6	58.0	11.8	12.2	12.6	13.7
# SY Sunrise	114.6	<b>105.9</b>	101.3	<b>100.1</b>	<b>65.2</b>	63.5	62.6	<b>61.0</b>	12.8	12.8	13.0	<b>13.8</b>
SY Wolf	117.2	97.4	91.8	89.7	64.9	61.7	61.3	60.3	12.5	12.9	13.4	<b>14.3</b>
Warhorse	120.7	<b>107.1</b>	97.2	90.4	63.8	62.1	61.2	59.7	13.0	13.3	13.6	<b>14.8</b>
# WB4483	133.2	93.3	79.3		64.8	60.4	60.1		11.6	13.2	13.3	
# WB4575	116.9	70.6	61.4		65.1	60.2	60.4		12.5	13.8	13.6	
# WB4614	135.6	98.1	87.8	81.3	<b>65.5</b>	62.8	62.0	<b>60.9</b>	11.8	12.7	12.9	<b>14.0</b>
# WB4623CLP	127.5	<b>114.3</b>	<b>109.0</b>	<b>99.9</b>	64.0	63.5	63.3	<b>62.2</b>	13.7	13.5	13.3	<b>14.4</b>
Yellowstone <sup>1/</sup>	137.3	-	-	-	63.8	-	-	-	11.9	-	-	-
Average	<b>131.8</b>	<b>109.9</b>	<b>97.6</b>	<b>92.6</b>	<b>64.1</b>	<b>61.9</b>	<b>61.3</b>	<b>59.9</b>	<b>12.3</b>	<b>12.7</b>	<b>13.0</b>	<b>14.0</b>
LSD (0.05)	<b>11.6</b>	<b>31.4</b>	<b>20.1</b>	<b>14.4</b>	<b>0.4</b>	ns	ns	<b>1.7</b>	ns	ns	ns	<b>1.0</b>
C.V.	<b>5.0</b>	<b>14.0</b>	<b>12.4</b>	<b>10.9</b>	<b>0.4</b>	<b>2.6</b>	<b>2.3</b>	<b>2.0</b>	<b>4.5</b>	<b>4.9</b>	<b>5.1</b>	

+ = new for 2018, # = paid entry

<sup>1/</sup> Yellowstone mis-planted in 2017: no 2, 3, and 4 year data

**bold** = indicates highest value within a column

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



Table 21. 2015-2018 Intrastate Winter Wheat Test (Exp. 3502): Havre Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bushels/acre)				Test Weight (lb/bu)				Protein (%)			
	2018	2017-18	2016-18	2015-18	2018	2017-18	2016-18	2015-18	2018	2017-18	2016-18	2015-18
	1y	2y	3y	4y	1y	2y	3y	4y	1y	2y	3y	4y
#+ 07CL046-2 (SY Legend CL2)	55.0				63.2				14.0			
#+ AAC Wildfire	<b>72.5</b>				62.2				13.8			
Bearpaw	57.9	50.4	55.0	56.3	62.8	62.2	60.5	60.5	14.9	<b>14.8</b>	<b>13.3</b>	<b>13.2</b>
Brawl CLP	57.6	50.6	63.6	60.8	<b>64.3</b>	63.5	<b>62.7</b>	<b>62.5</b>	14.0	14.1	<b>13.1</b>	<b>13.2</b>
# CO13003C (Byrd CL Plus)	58.8	55.6			63.4	62.4			12.6	13.2		
Decade	53.6	51.0	60.9	60.5	62.6	62.2	60.7	60.9	14.7	<b>14.6</b>	<b>13.0</b>	<b>13.1</b>
FourOsix	60.3	55.4	<b>69.8</b>		62.6	62.6	<b>61.7</b>		14.9	<b>14.7</b>	<b>13.5</b>	
#+ Incline AX	63.7				62.6				12.5			
Judee	55.7	52.6	63.5	62.7	63.6	63.3	<b>62.6</b>	<b>62.4</b>	<b>15.5</b>	<b>14.9</b>	<b>13.2</b>	<b>13.1</b>
# Keldin	<b>68.6</b>	<b>62.7</b>	<b>77.7</b>	<b>73.6</b>	63.1	62.7	<b>62.2</b>	<b>62.0</b>	13.7	13.3	12.4	12.4
# Langin	62.3	55.8			63.2	62.6			12.9	13.0		
# LCS Chrome	54.5	51.0			63.0	62.3			14.6	<b>14.4</b>		
# LCS Jet	59.5	53.9			60.7	60.5			13.8	13.4		
#+ LCS Link	49.5				63.4				14.9			
Loma	60.5	54.6	63.3	61.4	62.6	62.4	61.1	61.0	14.4	14.3	<b>12.9</b>	<b>13.0</b>
# Long Branch	64.6	<b>57.6</b>			63.2	61.8			12.2	12.7		
#+ LWW14-73915 (LCS Zoom)	53.8				60.9				13.8			
MT1265	58.0	<b>56.5</b>	<b>73.3</b>	<b>69.6</b>	61.7	62.2	<b>61.5</b>	61.3	14.5	<b>14.5</b>	<b>13.0</b>	<b>13.0</b>
MT1547	59.4	54.7			62.7	62.6			14.1	14.3		
MT1563	61.0	<b>60.2</b>			62.0	62.4			14.0	13.8		
MT1564	61.2	<b>56.4</b>			63.6	63.0			13.8	13.8		
+ MT16101	55.8				62.5				14.5			
+ MT1642	60.1				60.6				15.3			
+ MT1683	61.5				61.4				14.6			
+ MT1687	58.7				63.1				14.4			
+ MT1688	60.0				63.2				14.4			
+ MT1695	56.5				62.6				13.9			
+ MTCS1601	55.5				62.9				14.7			
MTF1435	55.0	50.0			60.6	61.5			14.2	14.1		
+ MTF1631	57.5				62.0				14.4			
MTS1588	62.7	<b>59.4</b>			62.7	62.5			14.3	14.2		
+ MTV1681	61.7				62.1				14.1			
MTW1491	60.5	<b>60.3</b>	<b>76.9</b>		62.4	62.7	<b>61.8</b>		14.0	13.8	12.5	
Northern	56.5	54.3	<b>70.8</b>	<b>68.4</b>	62.3	62.3	61.2	61.1	14.2	<b>14.4</b>	<b>13.2</b>	<b>13.1</b>
#+ NSA10-2196	56.2				60.5				13.3			
+ Oahe	49.2				63.4				14.3			
# PSB13NEDH-7-140	48.9	51.3			62.2	62.5			<b>16.1</b>	<b>15.3</b>		
Ray	60.6	<b>56.5</b>			59.8	60.8			14.3	13.8		
# SY 517 CL2	51.3	43.5			<b>64.1</b>	63.5			14.1	14.2		
SY Clearstone 2CL	61.8	54.8	<b>69.3</b>	<b>66.5</b>	61.4	61.8	61.0	60.9	14.3	<b>14.5</b>	<b>13.1</b>	<b>13.0</b>
# SY Monument	59.3	<b>56.2</b>	<b>71.9</b>	<b>70.4</b>	62.4	61.9	61.1	61.1	13.0	12.9	12.0	11.8
# SY Sunrise	61.0	<b>56.8</b>	<b>68.8</b>	<b>67.6</b>	63.8	63.0	<b>62.3</b>	<b>62.2</b>	12.8	13.2	12.3	12.4
SY Wolf	59.7	<b>56.8</b>	<b>70.4</b>	<b>67.8</b>	63.4	63.3	<b>62.6</b>	<b>62.6</b>	14.2	14.0	<b>12.8</b>	<b>12.7</b>
Warhorse	57.0	50.5	63.6	62.8	62.5	62.3	<b>61.7</b>	61.5	14.9	<b>15.0</b>	<b>13.5</b>	<b>13.3</b>
# WB4483	61.2	<b>56.3</b>	66.7		63.0	62.7	<b>61.5</b>		14.8	<b>14.6</b>	<b>13.1</b>	
# WB4575	61.7	<b>56.4</b>	62.8		<b>64.3</b>	63.6	<b>62.1</b>		14.6	<b>14.8</b>	<b>13.2</b>	
# WB4614	56.9	54.1	<b>68.5</b>	<b>66.4</b>	62.9	62.5	<b>62.0</b>	<b>61.9</b>	14.7	14.3	<b>12.7</b>	<b>12.7</b>
# WB4623CLP	52.7	48.2	60.4	59.1	62.1	62.0	<b>61.9</b>	61.6	14.8	14.3	<b>12.9</b>	<b>13.1</b>
Yellowstone <sup>1/</sup>	61.9	-	-	-	61.7	-	-	-	14.2	-	-	-
Average	<b>58.6</b>	<b>54.5</b>	<b>67.2</b>	<b>64.9</b>	<b>62.5</b>	<b>62.4</b>	<b>61.7</b>	<b>61.6</b>	<b>14.2</b>	<b>14.1</b>	<b>12.9</b>	<b>12.9</b>
LSD (0.05)	<b>7.3</b>	<b>6.6</b>	<b>10.4</b>	<b>8.0</b>	<b>0.4</b>	ns	<b>1.3</b>	<b>1.0</b>	<b>0.7</b>	<b>0.9</b>	<b>0.8</b>	<b>0.7</b>
C.V.	<b>7.1</b>	<b>5.9</b>	<b>9.3</b>	<b>8.6</b>	<b>0.4</b>	<b>1.2</b>	<b>1.2</b>	<b>1.1</b>	<b>2.7</b>	<b>3.1</b>	<b>3.8</b>	<b>3.9</b>

+ = new for 2018, # = paid entry

<sup>1/</sup> Yellowstone mis-planted in 2017: no 2, 3, and 4 year data

**bold** = indicates highest value within a column

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

Table 22. 2016-2018 Intrastate Winter Wheat Test (Exp. 3503): Sidney Yield, Test Weight and Protein

Cultivar/Line	No harvest in 2015 due to severe winter-kill								
	Grain Yield (bushels/acre)			Test Weight (lb/bu)			Protein (%)		
	2018	2017-18	2016-18	2018	2017-18	2016-18	2018	2017-18	2016-18
	1y	2y	3y	1y	2y	3y	1y	2y	3y
#+ 07CL046-2 (SY Legend CL2)	63.1			62.8			11.6		
#+ AAC Wildfire	70.3			61.8			10.5		
Bearpaw	72.9	<b>54.2</b>	50.6	63.2	<b>63.9</b>	62.2	11.7	10.7	10.3
Brawl CLP	60.7	44.7	<b>54.6</b>	<b>64.4</b>	<b>64.8</b>	<b>64.0</b>	12.2	11.5	11.5
# CO13003C (Byrd CL Plus)	77.3	<b>59.7</b>		62.6	63.7		9.8	8.5	
Decade	73.4	<b>62.1</b>	<b>60.5</b>	62.5	63.7	62.5	10.9	9.8	10.3
FourOsix	68.0	<b>54.6</b>	<b>56.4</b>	62.5	63.7	62.5	10.7	9.5	9.5
#+ Incline AX	68.9			62.7			10.8		
Judee	66.7	40.2	44.7	<b>63.8</b>	<b>64.0</b>	63.3	11.8	12.0	11.4
# Keldin	<b>92.1</b>	<b>61.0</b>	<b>67.0</b>	<b>64.1</b>	<b>64.4</b>	<b>63.7</b>	10.2	9.8	10.1
# Langin	68.7	<b>51.8</b>		<b>63.4</b>	63.8		9.6	9.1	
# LCS Chrome	76.6	<b>58.4</b>		<b>64.2</b>	<b>64.8</b>		11.4	10.8	
# LCS Jet	42.2	37.1		57.0	59.6		<b>12.8</b>	11.0	
#+ LCS Link	61.8			<b>64.2</b>			11.1		
Loma	72.0	<b>54.3</b>	51.8	61.8	62.4	61.1	12.1	11.4	<b>12.2</b>
# Long Branch	68.4	<b>51.1</b>		62.3	63.6		10.3	9.6	
#+ LWW14-73915 (LCS Zoom)	45.5			54.8			12.4		
MT1265	<b>82.9</b>	<b>63.7</b>	<b>68.2</b>	62.8	63.4	63.0	10.9	9.6	9.3
MT1547	76.0	<b>60.9</b>		62.3	63.6		10.5	9.9	
MT1563	60.6	<b>52.1</b>		62.5	63.5		9.2	9.1	
MT1564	57.2	<b>48.3</b>		<b>63.9</b>	<b>65.0</b>		10.6	10.1	
+ MT16101	44.9			62.5			12.6		
+ MT1642	63.4			61.5			12.0		
+ MT1683	<b>82.0</b>			62.1			10.8		
+ MT1687	69.8			62.3			11.5		
+ MT1688	67.5			61.9			11.0		
+ MT1695	47.3			62.3			12.2		
+ MTCS1601	69.8			<b>64.6</b>			9.5		
MTF1435	51.2	46.8		60.5	62.0		10.8	9.7	
+ MTF1631	73.8			62.4			11.5		
MTS1588	64.3	<b>51.1</b>		<b>64.0</b>	<b>64.4</b>		10.8	10.1	
+ MTV1681	74.8			62.3			11.1		
MTW1491	72.9	<b>55.0</b>	<b>58.8</b>	62.9	63.8	62.6	11.0	10.2	10.0
Northern	<b>83.7</b>	<b>60.2</b>	<b>59.7</b>	63.2	63.8	62.4	11.1	10.3	10.4
#+ NSA10-2196	10.9			-			12.6		
+ Oahe	74.2			<b>64.4</b>			11.4		
# PSB13NEDH-7-140	<b>79.9</b>	<b>59.1</b>		<b>65.0</b>	<b>65.0</b>		11.6	10.9	
Ray	71.9	<b>57.7</b>		60.5	61.9		11.0	10.1	
# SY 517 CL2	60.3	43.1		<b>64.2</b>	<b>65.2</b>		11.0	10.7	
SY Clearstone 2CL	65.1	<b>53.2</b>	<b>56.2</b>	61.3	62.9	61.9	11.5	10.0	9.7
# SY Monument	<b>80.2</b>	<b>62.6</b>	<b>65.1</b>	61.8	62.7	62.0	9.6	8.7	9.2
# SY Sunrise	70.8	<b>59.2</b>	<b>64.7</b>	<b>63.5</b>	<b>64.6</b>	<b>64.0</b>	10.6	10.0	10.2
SY Wolf	70.9	<b>52.1</b>	<b>60.2</b>	<b>64.9</b>	<b>65.4</b>	<b>64.8</b>	10.6	10.0	10.2
Warhorse	69.1	<b>50.9</b>	49.3	62.5	63.0	62.3	11.8	11.1	11.2
# WB4483	72.3	<b>53.5</b>	<b>54.8</b>	61.7	63.7	62.3	12.2	10.8	11.2
# WB4575	<b>80.5</b>	<b>62.0</b>	<b>62.9</b>	<b>64.8</b>	<b>65.3</b>	<b>64.6</b>	12.0	11.1	11.1
# WB4614	66.0	<b>53.9</b>	<b>60.8</b>	<b>63.6</b>	<b>64.5</b>	<b>63.7</b>	10.1	9.6	9.3
# WB4623CLP	41.7	23.5	35.5	61.4	62.2	62.2	<b>14.2</b>	<b>13.5</b>	<b>12.8</b>
Yellowstone <sup>1/</sup>	72.7	-	-	62.1	-	-	10.4	-	-
Average	<b>66.9</b>	<b>53.0</b>	<b>56.9</b>	<b>62.6</b>	<b>63.7</b>	<b>62.9</b>	<b>11.2</b>	<b>10.3</b>	<b>10.5</b>
LSD (0.05)	13.4	15.9	14.2	1.7	1.6	1.4	1.5	1.2	1.3
C.V.	10.0	14.7	15.7	1.4	1.2	1.3	6.8	5.7	7.5

+ = new for 2018, # = paid entry

1/ Yellowstone mis-planted in 2017: no 2, 3, and 4 year data

**bold** = indicates highest value within a column

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

Table 23. 2015//2018 Intrastate Winter Wheat Test (Exp. 3504): Williston Yield, Test Weight and Protein

No harvest in 2017 due to extreme winter-kill

Cultivar/Line	Grain Yield (bushels/acre)			Test Weight (lb/bu)			Protein (%)	
	2018	2016//18	2015//18	2018	2016//18	2015//18	2018	2015//18
	1y	2y	3y	1y	2y	3y	1y	2y
#+ 07CL046-2 (SY Legend CL2)	38.0			60.3			13.6	
#+ AAC Wildfire	<b>55.1</b>			<b>61.0</b>			13.8	
Bearpaw	42.0	50.6	43.4	58.7	58.0	58.9	<b>14.6</b>	14.1
Brawl CLP	38.6	54.6	38.0	<b>61.2</b>	<b>60.5</b>	<b>61.0</b>	14.0	14.2
# CO13003C (Byrd CL Plus)	43.4			59.8			12.5	
Decade	44.3	60.5	47.3	59.7	59.0	<b>59.8</b>	14.0	14.4
FourOsix	46.8	56.4		60.1	59.4		13.9	
#+ Incline AX	42.7			59.8			12.8	
Judee	43.9	44.7	39.5	<b>61.2</b>	<b>60.3</b>	<b>60.4</b>	<b>14.3</b>	15.0
# Keldin	45.3	67.0	42.8	60.7	<b>60.1</b>	<b>60.5</b>	12.8	13.9
# Langin	37.5			59.3			12.0	
# LCS Chrome	38.9			60.7			13.7	
# LCS Jet	43.0			58.1			13.5	
#+ LCS Link	41.6			60.6			13.4	
Loma	46.6	51.8	48.8	59.7	59.2	<b>59.8</b>	13.9	13.4
# Long Branch	33.8			59.0			12.5	
#+ LWW14-73915 (LCS Zoom)	43.9			56.2			13.3	
MT1265	48.7	68.2	52.5	60.4	59.7	<b>59.8</b>	14.0	13.2
MT1547	46.8			60.0			14.0	
MT1563	<b>53.1</b>			60.5			13.0	
MT1564	44.5			60.1			13.4	
+ MT16101	43.9			60.4			14.1	
+ MT1642	<b>50.8</b>			59.4			14.0	
+ MT1683	48.7			59.8			13.3	
+ MT1687	45.1			60.0			13.9	
+ MT1688	41.1			59.2			13.7	
+ MT1695	40.6			59.9			13.1	
+ MTCS1601	42.9			59.3			14.1	
MTF1435	41.1			60.0			13.4	
+ MTF1631	47.7			60.5			14.0	
MTS1588	47.0			59.6			<b>14.4</b>	
+ MTV1681	46.6			59.5			14.0	
MTW1491	47.7	58.8		60.4	59.4		13.2	
Northern	45.4	59.7	48.7	60.6	<b>59.9</b>	<b>60.2</b>	14.2	13.0
#+ NSA10-2196	45.2			56.8			12.5	
+ Oahe	42.5			60.5			13.0	
# PSB13NEDH-7-140	43.5			<b>61.1</b>			<b>14.7</b>	
Ray	41.6			57.8			13.9	
# SY 517 CL2	39.4			60.1			13.4	
SY Clearstone 2CL	45.5	56.2	48.1	59.6	59.3	<b>59.9</b>	13.9	13.0
# SY Monument	42.2	65.1	46.2	58.7	58.1	58.7	12.4	12.8
# SY Sunrise	40.0	64.7	39.0	59.7	59.1	<b>60.1</b>	12.9	13.9
SY Wolf	43.8	60.2	46.1	<b>61.4</b>	<b>60.5</b>	<b>60.8</b>	13.5	13.5
Warhorse	45.2	49.3	42.3	60.0	59.5	59.6	<b>14.4</b>	13.2
# WB4483	43.8	54.8		58.8	58.7		<b>14.6</b>	
# WB4575	42.7	62.9		<b>61.1</b>	<b>60.5</b>		14.3	
# WB4614	44.6	60.8	46.8	60.1	59.4	<b>60.1</b>	14.2	13.3
# WB4623CLP	41.0	35.5	37.0	60.5	59.6	59.0	<b>14.8</b>	15.1
Yellowstone	46.9	52.8	56.6	60.0	59.2	59.7	13.8	13.2
Average	<b>44.0</b>	<b>48.3</b>	<b>45.2</b>	<b>59.8</b>	<b>59.5</b>	<b>59.9</b>	<b>13.6</b>	<b>13.7</b>
LSD (0.05)	<b>4.8</b>	ns	ns	<b>0.6</b>	<b>0.6</b>	<b>1.2</b>	<b>0.5</b>	ns
C.V.	<b>6.5</b>	<b>7.7</b>	<b>16.5</b>	<b>0.7</b>	<b>0.5</b>	<b>1.2</b>	<b>2.2</b>	<b>8.0</b>

+ = new for 2018, # = paid entry

**bold** = indicates highest value within a column

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

Table 24. 2015//2018 Intrastate Winter Wheat Test (Exp. 3505): Kalispell Yield, Test Weight and Protein

\*\*\* No harvest in 2017; Spring flooded - test abandoned \*\*\*

Cultivar/Line	Grain Yield (bushels/acre)			Test Weight (lb/bu)			Protein (%)		
	2018	2016//18	2015//18	2018	2016//18	2015//18	2018	2016//18	2015//18
	1y	2y	3y	1y	2y	3y	1y	2y	3y
#+ 07CL046-2 (SY Legend CL2)	71.2			<b>60.8</b>			12.0		
#+ AAC Wildfire	83.2			55.8			11.9		
Bearpaw	25.7	21.1	41.1	49.6	44.5	49.4	<b>13.9</b>	<b>14.7</b>	13.2
Brawl CLP	86.9	70.7	77.3	<b>60.2</b>	51.8	54.9	12.2	13.1	12.5
# CO13003C (Byrd CL Plus)	70.1			55.3			11.8		
Decade	48.4	33.5	45.4	53.1	48.0	51.7	11.5	12.9	11.7
FourOsix	92.4	<b>113.7</b>		<b>61.2</b>	<b>59.9</b>		11.2	11.5	
#+ Incline AX	52.9			52.7			11.4		
Judee	94.5	<b>106.7</b>	<b>112.9</b>	58.4	<b>58.4</b>	<b>60.1</b>	<b>13.2</b>	12.7	11.8
Keldin	101.3	<b>101.2</b>	<b>108.2</b>	<b>61.8</b>	<b>58.7</b>	<b>60.4</b>	11.2	11.3	10.8
# Langin	87.1			58.7			11.5		
# LCS Chrome	78.5			<b>61.0</b>			11.8		
# LCS Jet	<b>122.3</b>			<b>59.0</b>			10.2		
#+ LCS Link	80.1			<b>59.7</b>			11.6		
Loma	87.6	<b>107.8</b>	<b>120.1</b>	55.4	<b>56.4</b>	<b>58.6</b>	12.3	12.1	11.2
# Long Branch	101.5			<b>62.2</b>			11.4		
#+ LWW14-73915 (LCS Zoom)	<b>122.3</b>			<b>59.6</b>			11.4		
# MT1265	93.1	<b>111.6</b>	<b>121.0</b>	58.6	<b>58.0</b>	<b>59.2</b>	11.1	11.0	10.4
MT1547	94.5			<b>62.0</b>			11.1		
MT1563	86.6			56.4			11.3		
MT1564	<b>106.2</b>			<b>62.0</b>			11.2		
+ MT16101	105.5			<b>60.0</b>			12.0		
+ MT1642	96.2			54.3			11.6		
+ MT1683	100.1			<b>59.5</b>			11.5		
+ MT1687	89.6			<b>61.6</b>			12.8		
+ MT1688	79.7			<b>61.4</b>			12.4		
+ MT1695	93.7			<b>61.8</b>			11.1		
+ MTCS1601	85.4			<b>60.5</b>			12.7		
MTF1435	79.8			56.5			12.1		
+ MTF1631	85.6			55.0			12.1		
MTS1588	94.1			<b>59.8</b>			12.0		
+ MTV1681	82.2			55.9			11.8		
MTW1491	92.4	<b>115.6</b>		<b>59.5</b>	<b>59.6</b>		11.4	11.2	
Northern	78.2	<b>106.0</b>	<b>114.2</b>	56.2	<b>56.5</b>	<b>58.6</b>	12.2	12.0	11.5
#+ NSA10-2196	<b>124.9</b>			58.7			10.7		
+ Oahe	100.5			<b>62.3</b>			12.0		
# PSB13NEDH-7-140	72.1			<b>59.7</b>			11.6		
Ray	97.2			53.9			11.6		
# SY 517 CL2	53.2			56.0			11.6		
SY Clearstone 2CL	89.6	<b>103.4</b>	<b>112.9</b>	<b>59.1</b>	<b>57.0</b>	<b>58.9</b>	11.0	11.2	10.9
SY Monument	84.1	<b>105.6</b>	<b>110.9</b>	58.8	<b>56.9</b>	<b>58.6</b>	11.6	12.0	11.0
SY Sunrise	95.3	<b>113.0</b>	<b>112.4</b>	<b>61.7</b>	<b>59.7</b>	<b>61.1</b>	11.7	11.9	11.2
# SY Wolf	71.5	<b>85.1</b>	91.9	56.4	<b>54.3</b>	<b>57.2</b>	12.2	12.4	11.4
# Warhorse	92.0	<b>109.4</b>	<b>117.0</b>	<b>61.0</b>	<b>60.4</b>	<b>61.2</b>	12.5	12.8	12.2
# WB4483	74.5	<b>81.7</b>		57.6	<b>57.2</b>		12.3	12.3	
# WB4575	36.4	29.1		53.3	49.7		12.4	13.2	
WB4614	72.2	68.2	81.1	57.5	<b>54.4</b>	<b>57.3</b>	11.7	12.7	11.7
# WB4623CLP	87.2	<b>116.2</b>	<b>116.1</b>	<b>60.9</b>	<b>60.1</b>	<b>61.3</b>	12.5	13.2	12.4
# Yellowstone	83.6	<b>89.3</b>	<b>106.3</b>	57.8	<b>56.9</b>	<b>58.7</b>	11.0	11.1	10.6
Average	<b>85.4</b>	<b>89.4</b>	<b>99.3</b>	<b>58.4</b>	<b>55.9</b>	<b>58.0</b>	<b>11.8</b>	<b>12.2</b>	<b>11.5</b>
LSD (0.05)	19.2	40.6	28.1	3.4	6.7	5.0	0.7	1.4	1.2
C.V.	12.9	21.7	17.0	3.6	5.7	5.2	3.6	5.5	6.2

+ = new for 2018, # = paid entry

**bold** = indicates highest value within a column

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

Table 25. 2015-2018 Intrastate Winter Wheat Test (Exp. 3507): Moccasin Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bushels/acre)				Test Weight (lb/bu)				Protein (%)			
	2018	2017-18	2016-18	2015-18	2018	2017-18	2016-18	2015-18	2018	2017-18	2016-18	2015-18
	1y	2y	3y	4y	1y	2y	3y	4y	1y	2y	3y	4y
#+ 07CL046-2 (SY Legend CL2)	50.6				<b>64.1</b>				<b>13.2</b>			
#+ AAC Wildfire	65.1				61.5				11.8			
Bearpaw	61.7	60.3	58.5	58.4	63.4	61.2	61.6	60.6	<b>12.8</b>	13.1	<b>11.4</b>	<b>11.2</b>
Brawl CLP	60.0	62.9	61.6	58.7	<b>64.2</b>	<u>63.1</u>	<u>63.6</u>	<u>63.2</u>	<u>13.6</u>	13.1	<b>11.3</b>	<b>10.7</b>
# CO13003C (Byrd CL Plus)	67.7	65.3			64.0	60.0			11.5	11.8		
Decade	60.0	59.5	58.0	57.3	62.5	60.5	61.1	60.5	<b>13.0</b>	13.4	<b>11.6</b>	<b>11.1</b>
FourOsix	69.2	64.3	<b>66.8</b>		63.7	61.0	61.4		12.6	13.1	<b>11.4</b>	
#+ Incline AX	68.0				61.2				11.5			
Judee	57.1	58.7	55.3	52.0	63.9	<b>61.5</b>	62.3	61.6	<b>12.7</b>	13.4	<b>11.4</b>	<b>11.2</b>
# Keldin	65.7	67.4	<b>67.8</b>	<b>66.2</b>	63.2	60.8	61.3	61.2	12.1	12.8	<b>10.9</b>	10.2
# Langin	70.5	68.5			63.0	60.6			11.4	11.4		
# LCS Chrome	53.7	59.7			64.0	<b>61.4</b>			<b>13.0</b>	13.1		
# LCS Jet	69.8	67.7			59.5	57.0			11.2	12.1		
#+ LCS Link	65.6				63.7				12.4			
Loma	67.3	62.9	61.3	59.6	62.4	60.2	60.9	60.2	11.8	12.7	<b>11.0</b>	<b>10.7</b>
# Long Branch	61.9	62.4			63.4	61.2			12.0	12.3		
#+ LWW14-73915 (LCS Zoom)	68.8				60.0				11.5			
MT1265	<b>74.2</b>	69.9	<u>68.6</u>	<b>65.7</b>	61.9	59.2	59.9	59.3	11.5	12.7	<b>11.0</b>	<b>10.9</b>
MT1547	<b>72.9</b>	70.5			63.2	60.7			12.1	12.8		
MT1563	<b>72.1</b>	69.4			63.1	61.1			11.3	12.5		
MT1564	65.6	67.5			63.5	60.9			12.2	12.7		
+ MT16101	70.5				63.5				11.9			
+ MT1642	<b>76.0</b>				61.2				11.8			
+ MT1683	<u>81.9</u>				62.5				11.9			
+ MT1687	68.9				63.4				12.5			
+ MT1688	66.3				63.4				<b>12.8</b>			
+ MT1695	64.9				62.5				12.4			
+ MTCS1601	68.4				63.3				12.6			
MTF1435	61.7	66.2			61.2	59.6			12.3	12.8		
+ MTF1631	64.1				62.0				12.0			
MTS1588	63.7	62.2			63.6	<b>61.4</b>			11.8	12.5		
+ MTV1681	70.1				61.9				12.4			
MTW1491	70.7	68.8	<b>67.6</b>		63.0	60.8	61.1		11.1	12.1	10.4	
Northern	65.4	62.9	61.1	<b>61.9</b>	62.8	60.1	60.8	60.6	12.2	13.3	<b>11.5</b>	<u>11.4</u>
#+ NSA10-2196	64.1				60.5				11.6			
+ Oahe	65.1				<b>64.1</b>				12.3			
# PSB13NEDH-7-140	60.6	63.9			63.9	<b>61.5</b>			<b>13.5</b>	13.6		
Ray	<b>77.9</b>	69.7			59.7	58.1			11.6	12.7		
# SY 517 CL2	60.4	61.3			<b>64.3</b>	<b>61.4</b>			12.6	12.7		
SY Clearstone 2CL	69.0	66.3	<b>66.1</b>	<b>63.8</b>	62.0	60.1	60.5	60.2	11.6	12.5	<b>10.9</b>	10.5
# SY Monument	<b>72.7</b>	71.4	<b>68.5</b>	<u>66.4</u>	63.0	60.3	60.4	59.9	11.7	11.8	10.2	9.9
# SY Sunrise	63.7	63.4	<b>62.7</b>	61.0	<b>64.4</b>	<b>62.6</b>	<b>62.8</b>	<b>62.1</b>	12.3	12.8	<b>11.2</b>	<b>10.9</b>
SY Wolf	61.1	60.2	61.2	59.0	64.0	<b>62.1</b>	<b>62.4</b>	61.9	<b>12.7</b>	12.7	<b>11.0</b>	<b>10.7</b>
Warhorse	59.7	61.6	62.2	59.7	62.5	59.9	60.5	60.2	12.6	13.1	<b>11.5</b>	<b>11.1</b>
# WB4483	62.1	59.7	57.9		63.2	59.3	60.0		11.5	12.6	<b>11.2</b>	
# WB4575	62.5	58.6	59.6		<u>64.9</u>	<b>62.7</b>	<b>63.2</b>		<b>13.0</b>	13.5	<u>11.6</u>	
# WB4614	<b>72.6</b>	66.7	<b>62.4</b>	<b>61.2</b>	63.9	60.2	61.0	60.6	11.6	12.4	10.7	10.3
# WB4623CLP	62.0	58.4	57.1	54.8	63.2	<b>61.4</b>	62.2	61.6	<b>12.8</b>	13.2	<b>11.5</b>	<b>11.0</b>
Yellowstone <sup>1/</sup>	69.7	-	-	-	62.3	-	-	-	11.7	-	-	-
Average	<b>66.2</b>	<b>64.3</b>	<b>62.3</b>	<b>60.4</b>	<b>62.8</b>	<b>60.7</b>	<b>61.4</b>	<b>60.9</b>	<b>12.2</b>	<b>12.7</b>	<b>11.2</b>	<b>10.8</b>
LSD (0.05)	11.2	ns	6.2	5.3	0.8	1.8	1.2	1.0	0.9	ns	0.8	0.7
C.V.	10.4	6.8	6.1	6.1	0.8	1.4	1.2	1.2	4.4	4.6	4.3	4.7

+ = new for 2018, # = paid entry

1/ Yellowstone mis-planted in 2017: no 2, 3, and 4 year data

**bold** = indicates highest value within a column

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

Table 26. 2016-2018 Intrastate Winter Wheat Test (Exp. 3508): Huntley Yield, Test Weight and Protein

Cultivar/Line	2015 = Not Planted; 2016 = 'sub-irrigated'								
	Grain Yield (bushels/acre)			Test Weight (lb/bu)			Protein (%)		
	2018	2017-18	2016-18	2018	2017-18	2016-18	2018	2017-18	2016-18
	1y	2y	3y	1y	2y	3y	1y	2y	3y
#+ 07CL046-2 (SY Legend CL2)	102.5			<b>63.1</b>			12.0		
#+ AAC Wildfire	98.8			62.7			12.8		
Bearpaw	112.4	97.4	96.6	61.8	61.1	61.3	13.0	<b>13.7</b>	<b>13.0</b>
Brawl CLP	114.0	114.9	112.9	<b>63.0</b>	<b>63.8</b>	<b>63.7</b>	12.8	13.1	12.5
# CO13003C (Byrd CL Plus)	<b>125.5</b>	<b>125.4</b>		62.0	62.0		11.6	11.7	
Decade	114.5	107.7	104.4	60.9	61.5	61.5	12.2	12.7	12.2
FourOsix	111.0	113.7	113.1	62.1	62.5	62.4	12.5	12.9	12.3
#+ Incline AX	108.7			60.9			11.3		
Judee	100.2	107.8	105.8	62.2	62.7	<b>62.6</b>	12.7	13.3	12.6
# Keldin	<b>136.6</b>	<b>135.9</b>	<b>128.5</b>	<b>63.1</b>	<b>63.5</b>	<b>62.8</b>	11.7	12.1	11.9
# Langin	<b>126.7</b>	<b>127.8</b>		61.3	61.9		11.5	11.4	
# LCS Chrome	108.4	115.4		<b>63.0</b>	<b>63.0</b>		12.6	13.0	
# LCS Jet	<b>134.9</b>	<b>137.6</b>		61.5	61.6		12.6	13.2	
#+ LCS Link	<b>127.0</b>			<b>62.9</b>			11.8		
Loma	98.0	104.7	106.6	61.1	61.3	61.6	12.4	12.7	12.1
# Long Branch	118.4	<b>123.1</b>		<b>62.8</b>	62.7		11.3	11.8	
#+ LWW14-73915 (LCS Zoom)	<b>131.9</b>			60.2			12.0		
MT1265	114.6	114.1	113.6	61.5	61.5	61.4	12.5	13.2	12.7
MT1547	113.1	113.5		62.4	62.5		12.2	13.0	
MT1563	113.6	113.6		62.0	61.9		12.2	13.0	
MT1564	116.8	<b>124.3</b>		<b>63.0</b>	<b>63.1</b>		11.8	12.3	
+ MT16101	113.2			62.6			12.1		
+ MT1642	120.3			61.6			12.8		
+ MT1683	105.1			61.8			12.3		
+ MT1687	118.7			<b>63.2</b>			12.6		
+ MT1688	111.1			61.9			12.7		
+ MT1695	98.5			62.0			11.8		
+ MTCS1601	104.9			<b>62.8</b>			13.2		
MTF1435	89.4	92.5		61.7	62.0		13.2	13.3	
+ MTF1631	102.7			<b>62.9</b>			13.7		
MTS1588	100.8	105.4		62.3	62.3		12.8	<b>13.4</b>	
+ MTV1681	108.3			61.4			12.5		
MTW1491	106.7	116.3	<b>115.8</b>	<b>62.8</b>	<b>62.9</b>	<b>62.7</b>	12.1	12.7	12.1
Northern	108.4	110.8	113.0	62.4	61.9	61.9	12.3	12.9	12.5
#+ NSA10-2196	122.6			58.6			11.8		
+ Oahe	110.4			<b>63.5</b>			12.3		
# PSB13NEDH-7-140	<b>125.5</b>	<b>120.4</b>		<b>63.2</b>	<b>63.6</b>		12.6	13.2	
Ray	104.9	109.1		61.0	60.7		13.1	13.3	
# SY 517 CL2	120.6	112.2		<b>63.4</b>	<b>64.0</b>		11.8	12.3	
SY Clearstone 2CL	103.4	111.4	111.8	61.4	61.5	61.4	12.5	13.2	12.5
# SY Monument	122.1	<b>126.0</b>	<b>121.8</b>	62.3	62.6	62.1	12.0	12.2	11.8
# SY Sunrise	108.3	113.8	111.3	62.5	<b>63.4</b>	<b>63.0</b>	11.2	11.8	11.6
SY Wolf	121.5	<b>122.2</b>	<b>120.7</b>	<b>62.8</b>	<b>63.4</b>	<b>63.2</b>	12.7	12.9	12.5
Warhorse	110.6	110.6	107.6	62.6	<b>62.8</b>	62.5	13.4	<b>13.6</b>	<b>12.9</b>
# WB4483	90.8	96.2	99.9	60.0	60.3	60.8	13.2	<b>13.5</b>	12.5
# WB4575	106.9	90.7	93.0	<b>63.3</b>	62.1	62.3	12.3	13.2	12.7
# WB4614	97.2	106.8	107.3	61.5	61.9	62.0	12.5	12.6	11.9
# WB4623CLP	99.5	107.3	105.7	<b>62.9</b>	<b>63.1</b>	<b>63.1</b>	13.3	<b>14.1</b>	<b>13.4</b>
Yellowstone <sup>1/</sup>	104.5	-	-	61.5	-	-	12.5	-	-
Average	<b>111.5</b>	<b>113.4</b>	<b>109.9</b>	<b>62.1</b>	<b>62.3</b>	<b>62.2</b>	<b>12.4</b>	<b>12.8</b>	<b>12.4</b>
LSD (0.05)	<b>11.7</b>	<b>18.2</b>	<b>14.3</b>	<b>0.7</b>	<b>1.2</b>	<b>1.1</b>		<b>0.7</b>	<b>0.6</b>
C.V.	<b>6.1</b>	<b>7.9</b>	<b>7.9</b>	<b>0.7</b>	<b>1.0</b>	<b>1.1</b>		<b>2.8</b>	<b>3.1</b>

+ = new for 2018, # = paid entry

1/ Yellowstone mis-planted in 2017: no 2, 3, and 4 year data

**bold** = indicates highest value within a column

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

Table 27. 2015-2018 Intrastate Winter Wheat Test (Exp. 3518): Conrad Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bushels/acre)				Test Weight (lb/bu)				Protein (%)			
	2018	2017-18	2016-18	2015-18	2018	2017-18	2016-18	2015-18	2018	2017-18	2016-18	2015-18
	1y	2y	3y	4y	1y	2y	3y	4y	1y	2y	3y	4y
#+ 07CL046-2 (SY Legend CL2)	<b>71.5</b>				61.5				13.4			
#+ AAC Wildfire	61.7				60.7				13.7			
Bearpaw	48.2	60.5	72.1	70.8	62.5	61.5	61.8	61.1	<b>15.7</b>	<b>14.6</b>	<b>13.7</b>	<b>13.7</b>
Brawl CLP	65.5	<b>73.0</b>	<b>79.7</b>	<b>81.2</b>	<b>63.6</b>	<b>63.6</b>	<b>63.7</b>	<b>63.5</b>	13.1	12.8	<b>13.0</b>	13.1
# CO13003C (Byrd CL Plus)	<b>76.5</b>	<b>79.9</b>			61.0	60.9			12.9	12.5		
Decade	52.5	59.9	71.8	72.1	62.4	62.2	62.3	61.7	14.9	<b>14.0</b>	<b>13.1</b>	13.2
FourOsix	60.8	66.1	<b>78.8</b>		61.2	61.0	61.5		14.0	13.5	<b>12.9</b>	
#+ Incline AX	<b>68.3</b>				61.1				11.9			
Judee	57.0	65.3	73.3	70.8	<b>63.3</b>	<b>62.6</b>	<b>62.9</b>	61.8	<b>15.2</b>	<b>14.4</b>	<b>13.8</b>	<b>13.9</b>
# Keldin	61.5	70.8	<b>83.7</b>	<b>85.2</b>	62.4	62.4	<b>62.7</b>	62.1	13.8	13.5	12.6	12.8
# Langin	<b>69.0</b>	<b>77.9</b>			61.8	61.7			12.3	11.8		
# LCS Chrome	56.1	66.0			62.1	61.9			14.3	<b>13.8</b>		
# LCS Jet	<b>66.7</b>	<b>75.9</b>			60.3	59.2			13.8	13.2		
#+ LCS Link	50.7				<b>64.2</b>				14.6			
Loma	64.6	68.7	<b>77.8</b>	<b>78.5</b>	62.6	61.6	61.1	60.2	14.9	<b>14.2</b>	<b>13.4</b>	<b>13.4</b>
# Long Branch	63.8	<b>77.9</b>			<b>63.1</b>	<b>62.8</b>			13.1	12.5		
#+ LWW14-73915 (LCS Zoom)	<b>72.8</b>				60.1				12.8			
MT1265	58.1	67.8	<b>78.4</b>	<b>78.9</b>	61.6	61.0	61.5	60.8	14.4	<b>13.8</b>	<b>13.0</b>	13.1
MT1547	59.8	64.6			61.3	60.9			14.1	13.7		
MT1563	59.6	67.6			60.7	60.3			14.3	13.6		
MT1564	53.1	63.0			61.4	61.5			<b>15.2</b>	<b>13.8</b>		
+ MT16101	56.6				62.5				13.9			
+ MT1642	60.9				60.6				14.7			
+ MT1683	58.5				61.2				14.5			
+ MT1687	54.1				61.9				<b>15.3</b>			
+ MT1688	57.9				61.2				<b>15.1</b>			
+ MT1695	48.9				61.5				14.6			
+ MTCS1601	<b>71.3</b>				61.9				13.7			
MTF1435	56.5	61.9			61.0	60.7			13.8	13.3		
+ MTF1631	59.1				61.3				13.7			
MTS1588	<b>67.0</b>	<b>73.3</b>			62.7	61.8			14.5	<b>14.2</b>		
+ MTV1681	49.3				60.6				14.8			
MTW1491	57.3	64.1	<b>76.5</b>		61.4	60.9	61.6		14.1	13.5	<b>12.9</b>	
Northern	55.1	64.7	<b>77.6</b>	<b>80.2</b>	62.0	61.1	61.2	60.8	14.5	<b>13.8</b>	<b>13.1</b>	13.0
#+ NSA10-2196	62.4				60.2				13.3			
+ Oahe	61.2				61.7				13.3			
# PSB13NEDH-7-140	59.6	65.8			61.9	62.0			14.8	<b>14.1</b>		
Ray	61.4	65.4			60.0	58.7			13.8	13.4		
# SY 517 CL2	<b>69.0</b>	<b>72.7</b>			<b>63.0</b>	<b>63.1</b>			12.8	12.7		
SY Clearstone 2CL	<b>65.5</b>	<b>73.2</b>	<b>81.4</b>	<b>81.8</b>	59.9	60.1	60.9	60.0	14.0	13.6	<b>13.0</b>	12.9
# SY Monument	63.7	<b>71.4</b>	<b>84.6</b>	<b>84.5</b>	61.4	60.6	61.0	60.4	13.1	12.6	12.0	12.2
# SY Sunrise	63.9	70.3	<b>77.1</b>	<b>78.4</b>	<b>63.3</b>	<b>63.1</b>	<b>63.2</b>	<b>63.1</b>	12.8	12.7	12.4	12.6
SY Wolf	63.9	<b>71.8</b>	<b>84.3</b>	<b>86.0</b>	62.9	62.3	<b>63.0</b>	<b>62.7</b>	14.0	13.6	12.8	12.9
Warhorse	50.0	58.0	66.9	64.7	60.3	59.8	60.5	59.8	<b>15.0</b>	<b>14.2</b>	<b>13.5</b>	<b>13.6</b>
# WB4483	61.7	64.7	<b>77.2</b>		61.9	61.6	61.5		14.7	<b>14.6</b>	<b>13.6</b>	
# WB4575	64.1	69.4	<b>78.6</b>		<b>64.3</b>	<b>63.1</b>	<b>63.5</b>		14.2	<b>13.9</b>	<b>13.3</b>	
# WB4614	<b>67.4</b>	70.6	<b>82.8</b>	<b>81.0</b>	<b>62.9</b>	<b>62.7</b>	<b>63.0</b>	62.4	13.9	13.5	<b>12.9</b>	13.1
# WB4623CLP	<b>71.0</b>	69.5	<b>78.5</b>	75.7	61.9	61.2	61.5	61.1	14.3	<b>13.9</b>	<b>13.4</b>	<b>13.6</b>
Yellowstone <sup>1/</sup>	56.4	-	-	-	60.9	-	-	-	14.6	-	-	-
Average	<b>61.0</b>	<b>64.5</b>	<b>78.0</b>	<b>78.0</b>	<b>61.7</b>	<b>61.5</b>	<b>62.0</b>	<b>61.4</b>	<b>14.0</b>	<b>13.5</b>	<b>13.1</b>	<b>13.1</b>
LSD (0.05)	<b>11.0</b>	<b>8.8</b>	<b>8.2</b>	<b>7.8</b>	<b>1.4</b>	<b>1.2</b>	<b>1.1</b>	<b>1.1</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.7</b>
C.V.	<b>10.4</b>	<b>6.3</b>	<b>6.3</b>	<b>7.0</b>	<b>1.4</b>	<b>1.0</b>	<b>1.1</b>	<b>1.3</b>	<b>3.2</b>	<b>2.9</b>	<b>3.9</b>	<b>3.7</b>

+ = new for 2018, # = paid entry

<sup>1/</sup> Yellowstone mis-planted in 2017: no 2, 3, and 4 year data

**bold** = indicates highest value within a column

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

Table 28. 2016-2018 Intrastate Winter Wheat Test (Exp. 3503): Ft. Benton Yield, Test Weight and Protein

Cultivar/Line	Plots not planted in 2015								
	Grain Yield (bushels/acre)			Test Weight (lb/bu)			Protein (%)		
	2018	2017-18	2016-18	2018	2017-18	2016-18	2018	2017-18	2016-18
	1y	2y	3y	1y	2y	3y	1y	2y	3y
#+ 07CL046-2 (SY Legend CL2)	<b>69.3</b>			60.1			11.8		
#+ AAC Wildfire	<b>70.2</b>			59.9			12.3		
Bearpaw	<b>70.7</b>	58.5	60.4	<b>61.7</b>	<b>59.5</b>	<b>59.5</b>	11.9	12.1	12.0
Brawl CLP	63.2	55.6	61.8	<b>62.7</b>	<b>60.0</b>	<b>60.7</b>	12.3	<b>12.7</b>	12.4
# CO13003C (Byrd CL Plus)	<b>73.8</b>	63.1		60.2	<b>58.7</b>		11.6	11.8	
Decade	<b>66.8</b>	59.8	64.1	59.8	<b>58.9</b>	59.4	12.5	<b>12.8</b>	12.1
FourOsix	53.5	53.1	58.7	60.1	<b>58.9</b>	<b>59.7</b>	12.2	<b>12.5</b>	12.1
#+ Incline AX	54.9			59.0			11.5		
Judee	64.0	59.2	60.3	<b>61.0</b>	58.4	<b>59.5</b>	12.4	<b>12.7</b>	12.5
# Keldin	60.0	58.6	63.3	60.1	58.5	59.0	11.9	12.4	12.1
# Langin	58.2	51.5		60.0	58.5		11.0	11.6	
# LCS Chrome	65.5	53.6		60.5	<b>58.6</b>		12.0	12.4	
# LCS Jet	54.6	55.2		57.5	57.2		11.9	12.1	
#+ LCS Link	<b>70.7</b>			60.8			11.2		
Loma	<b>67.1</b>	62.1	67.3	59.3	<b>58.8</b>	59.3	12.3	<b>12.6</b>	11.8
# Long Branch	<b>67.2</b>	58.0		60.8	<b>59.4</b>		10.9	11.2	
#+ LWW14-73915 (LCS Zoom)	53.9			55.0			12.0		
MT1265	63.2	53.4	59.1	59.7	57.7	58.5	11.7	<b>12.7</b>	12.3
MT1547	63.5	55.8		59.6	57.4		12.8	<b>13.0</b>	
MT1563	65.9	53.7		59.0	56.3		12.3	<b>12.5</b>	
MT1564	58.8	59.3		60.1	<b>58.8</b>		11.8	12.3	
+ MT16101	55.0			60.4			12.1		
+ MT1642	<b>66.7</b>			58.5			12.2		
+ MT1683	<b>67.5</b>			59.5			11.7		
+ MT1687	58.6			60.7			12.2		
+ MT1688	62.3			59.7			12.4		
+ MT1695	54.4			58.8			12.1		
+ MTCS1601	52.8			60.6			12.4		
MTF1435	63.7	51.9		59.4	57.0		12.2	12.4	
+ MTF1631	65.2			59.8			12.5		
MTS1588	<b>68.6</b>	63.1		<b>61.4</b>	<b>59.8</b>		11.6	12.1	
+ MTV1681	53.3			58.6			12.6		
MTW1491	61.0	56.8	61.8	59.2	57.0	57.9	11.9	<b>12.6</b>	12.0
Northern	<b>69.7</b>	56.2	60.9	59.8	57.2	58.2	12.1	12.3	11.9
#+ NSA10-2196	52.2			55.5			11.6		
+ Oahe	<b>83.0</b>			<b>61.3</b>			11.5		
# PSB13NEDH-7-140	62.7	58.5		<b>61.8</b>	<b>60.0</b>		12.3	<b>12.7</b>	
Ray	56.6	48.3		58.1	57.4		12.2	<b>12.5</b>	
# SY 517 CL2	59.0	59.1		<b>61.8</b>	<b>60.8</b>		12.3	<b>12.6</b>	
SY Clearstone 2CL	<b>68.5</b>	56.0	61.3	59.1	57.6	58.0	12.3	<b>12.6</b>	11.9
# SY Monument	<b>76.4</b>	60.4	66.5	58.6	56.2	57.7	11.5	12.0	11.5
# SY Sunrise	<b>72.1</b>	60.2	61.1	60.5	<b>58.9</b>	<b>59.6</b>	11.6	11.9	11.7
SY Wolf	60.2	53.4	58.8	<b>62.1</b>	57.9	59.3	11.8	12.4	11.8
Warhorse	<b>72.4</b>	62.7	62.7	60.7	58.3	59.1	12.6	<b>12.7</b>	12.1
# WB4483	56.0	57.7	61.9	60.0	<b>58.9</b>	<b>59.5</b>	12.2	<b>12.7</b>	12.0
# WB4575	<b>81.1</b>	64.7	67.9	<b>62.2</b>	<b>60.5</b>	<b>61.2</b>	12.2	<b>12.6</b>	12.4
# WB4614	<b>72.7</b>	64.0	61.2	<b>61.3</b>	<b>59.1</b>	<b>59.6</b>	11.9	12.3	11.8
# WB4623CLP	58.5	53.7	54.8	<b>61.5</b>	<b>58.9</b>	59.2	12.9	<b>12.9</b>	12.4
Yellowstone <sup>1/</sup>	<b>70.0</b>	-	-	58.8	-	-	12.1	-	-
Average	<b>64.0</b>	<b>57.4</b>	<b>61.8</b>	<b>59.9</b>	<b>58.4</b>	<b>59.2</b>	<b>12.0</b>	<b>12.4</b>	<b>12.0</b>
LSD (0.05)	<b>16.5</b>	ns	ns	1.6	2.3	1.7		0.6	ns
C.V.	<b>15.9</b>	<b>12.1</b>	<b>10.8</b>	1.6	1.9	1.8		2.2	3.4

+ = new for 2018, # = paid entry

1/ Yellowstone mis-planted in 2017: no 2, 3, and 4 year data

**bold** = indicates highest value within a column

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



**Table 29. 2015-2018 Intrastate Winter Wheat Test (Exp. 3501): Combined Locations Yield, Test Weight and Protein**

Cultivar/Line	Grain Yield (bushels/acre)				Test Weight (lb/bu)				Protein (%)			
	2018	2017-18	2016-18	2015-18	2018	2017-18	2016-18	2015-18	2018	2017-18	2016-18	2015-18
location-years	9	16	25	31	9	16	25	31	9	16	24	30
#+ 07CL046-2 (SY Legend CL2)	70.9				<b>62.3</b>				12.6			
#+ AAC Wildfire	<b>79.1</b>				61.1				12.6			
Bearpaw	67.5	62.0	60.7	60.3	60.9	60.6	59.6	59.3	<b>13.5</b>	<b>13.3</b>	<b>12.7</b>	<b>12.8</b>
Brawl CLP	73.5	69.2	71.7	69.9	<b>63.2</b>	<b>62.5</b>	<b>61.7</b>	<b>61.6</b>	13.1	13.0	12.6	<b>12.7</b>
# CO13003C (Byrd CL Plus)	<b>81.0</b>	<b>75.6</b>			61.4	60.7			11.7	11.7		
Decade	71.4	66.5	65.7	64.3	60.9	60.7	59.8	59.6	12.9	12.8	12.3	12.5
FourOsix	<b>77.4</b>	<b>74.5</b>	<b>79.2</b>		<b>62.0</b>	61.6	<b>61.3</b>		12.7	12.7	12.1	
#+ Incline AX	73.3				60.4				11.7			
Judee	74.1	70.2	72.0	70.4	<b>62.5</b>	<b>61.9</b>	<b>61.7</b>	<b>61.4</b>	<b>13.3</b>	<b>13.4</b>	<b>12.7</b>	<b>12.7</b>
# Keldin	<b>86.2</b>	<b>81.3</b>	<b>83.8</b>	<b>82.0</b>	<b>62.6</b>	<b>62.0</b>	<b>61.5</b>	<b>61.3</b>	12.2	12.3	11.8	12.0
# Langin	<b>80.0</b>	<b>75.6</b>			61.6	61.1			11.5	11.4		
# LCS Chrome	72.0	71.8			<b>62.5</b>	<b>61.9</b>			13.0	12.9		
# LCS Jet	<b>82.0</b>	<b>80.6</b>			59.5	59.3			12.4	12.4		
#+ LCS Link	75.7				<b>62.7</b>				12.6			
Loma	<b>78.2</b>	74.0	76.9	<b>77.4</b>	61.0	60.8	60.5	60.3	12.9	12.9	12.3	12.3
# Long Branch	<b>79.4</b>	<b>77.5</b>			<b>62.4</b>	<b>61.9</b>			11.7	11.7		
#+ LWW14-73915 (LCS Zoom)	<b>81.4</b>				58.7				12.3			
MT1265	<b>82.2</b>	<b>78.0</b>	<b>83.1</b>	<b>82.0</b>	61.3	60.7	60.7	60.4	12.5	12.7	12.0	12.0
MT1547	<b>79.9</b>	<b>76.0</b>			<b>62.0</b>	61.4			12.6	12.7		
MT1563	<b>79.5</b>	<b>75.7</b>			61.1	60.7			12.2	12.4		
MT1564	<b>77.1</b>	<b>77.3</b>			<b>62.5</b>	<b>62.1</b>			12.5	12.4		
+ MT16101	75.2				<b>62.1</b>				12.9			
+ MT1642	<b>81.6</b>				60.1				12.9			
+ MT1683	<b>83.0</b>				61.3				12.5			
+ MT1687	76.4				<b>62.3</b>				13.2			
+ MT1688	74.9				61.8				13.1			
+ MT1695	70.8				61.7				12.6			
+ MTCS1601	76.3				<b>62.3</b>				12.8			
MTF1435	68.5	67.4			60.4	60.4			12.7	12.6		
+ MTF1631	75.4				61.0				13.0			
MTS1588	<b>78.1</b>	<b>74.7</b>			<b>62.3</b>	<b>61.8</b>			12.7	12.8		
+ MTV1681	76.8				60.6				12.9			
MTW1491	<b>79.9</b>	<b>78.0</b>	<b>83.5</b>		61.8	61.4	<b>61.2</b>		12.3	12.4	11.8	
Northern	<b>78.9</b>	73.7	<b>78.4</b>	<b>78.6</b>	61.5	60.7	60.5	60.4	12.8	12.9	12.3	12.4
#+ NSA10-2196	75.2				59.0				12.1			
+ Oahe	<b>78.5</b>				<b>62.9</b>				12.6			
# PSB13NEDH-7-140	75.3	73.0			<b>62.6</b>	<b>62.3</b>			<b>13.4</b>	<b>13.3</b>		
Ray	<b>79.0</b>	<b>74.9</b>			59.2	59.2			12.7	12.6		
# SY 517 CL2	69.7	66.8			<b>62.5</b>	<b>62.3</b>			12.5	12.5		
SY Clearstone 2CL	<b>79.0</b>	<b>75.4</b>	<b>79.0</b>	<b>78.5</b>	60.8	60.5	60.2	60.0	12.6	12.6	12.0	12.0
# SY Monument	<b>81.9</b>	<b>78.6</b>	<b>82.9</b>	<b>81.6</b>	61.2	60.5	60.1	59.8	11.9	11.8	11.5	11.6
# SY Sunrise	76.6	<b>74.6</b>	<b>78.4</b>	<b>77.2</b>	<b>62.7</b>	<b>62.5</b>	<b>62.0</b>	<b>61.9</b>	12.1	12.2	11.8	12.0
SY Wolf	74.4	71.4	76.6	75.6	<b>62.5</b>	<b>61.9</b>	<b>61.6</b>	<b>61.5</b>	12.7	12.6	12.2	12.2
Warhorse	75.2	71.2	73.3	72.5	61.8	61.1	60.9	60.6	<b>13.4</b>	<b>13.3</b>	<b>12.7</b>	<b>12.8</b>
# WB4483	72.8	67.5	70.0		61.2	60.6	60.4		13.0	13.2	12.5	
# WB4575	72.5	64.0	64.4		<b>62.6</b>	<b>61.8</b>	<b>61.3</b>		13.1	<b>13.3</b>	<b>12.7</b>	
# WB4614	76.1	71.5	73.0	72.0	<b>62.1</b>	61.5	<b>61.1</b>	61.0	12.5	12.5	11.9	12.0
# WB4623CLP	71.2	67.4	73.3	71.1	<b>62.0</b>	61.6	<b>61.6</b>	<b>61.3</b>	<b>13.7</b>	<b>13.6</b>	<b>12.9</b>	<b>13.1</b>
Yellowstone <sup>1/</sup>	<b>78.1</b>	-	-	-	60.9	-	-	-	12.5	-	-	-
Average	<b>76.6</b>	<b>73.0</b>	<b>75.0</b>	<b>74.2</b>	<b>61.6</b>	<b>61.2</b>	<b>60.9</b>	<b>60.7</b>	<b>12.6</b>	<b>12.7</b>	<b>12.2</b>	<b>12.3</b>
LSD (0.05)	<b>9.3</b>	<b>7.0</b>	<b>6.9</b>	<b>5.8</b>	<b>1.1</b>	<b>0.8</b>	<b>0.9</b>	<b>0.8</b>	<b>0.5</b>	<b>0.4</b>	<b>0.4</b>	<b>0.3</b>
C.V.	<b>13.0</b>	<b>13.8</b>	<b>16.5</b>	<b>15.6</b>	<b>1.9</b>	<b>2.0</b>	<b>2.8</b>	<b>2.6</b>	<b>4.2</b>	<b>4.1</b>	<b>5.0</b>	<b>5.5</b>

+ = new for 2018, # = paid entry

<sup>1/</sup> Yellowstone mis-planted in 2017: no 2, 3, and 4 year data

**bold** = indicates highest value within a column

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

Table 30. 2013//2018 Intrastate Winter Wheat Test (Exp. 35): Combined Locations Winter Survival and associated Yield (Locations: Williston (2013, 2015), Sidney (2017, 2018) = 4 locations

*** No recordable Winterkill, with a harvest, in 2014 and 2016 ***								
location-years	Winter Survival (%)				Yield under Winterkill conditions			
	2018	2017-18	2015//18	2013//18	2018	2017-18	2015//18	2013//18
	1	2	3	4	1	2	3	4
#+ 07CL046-2 (SY Legend C	34				63.1			
#+ AAC Wildfire	<b>65</b>				70.3			
Bearpaw	45	40	<b>51</b>	44	72.9	<b>54.2</b>	<b>50.4</b>	50.0
Brawl CLP	45	36	42		60.7	44.7	38.3	
# CO13003C (Byrd CL Plus	<b>59</b>	47			77.3	<b>59.7</b>		
Decade	<b>69</b>	<b>66</b>	<b>70</b>	<b>59</b>	73.4	<b>62.1</b>	<b>57.3</b>	<b>57.2</b>
FourOsix	48	47			68.0	<b>54.6</b>		
#+ Incline AX	30				68.9			
Judee	49	36	38	32	66.7	40.2	36.1	36.4
# Keldin	<b>57</b>	43	38		<b>92.1</b>	<b>61.0</b>	<b>50.0</b>	
# Langin	<b>59</b>	48			68.7	<b>51.8</b>		
# LCS Chrome	44	43			76.6	<b>58.4</b>		
# LCS Jet	14	13			42.2	37.1		
#+ LCS Link	54				61.8			
Loma	46	43	<b>60</b>		72.0	<b>54.3</b>	<b>53.5</b>	
# Long Branch	50	50			68.4	<b>51.1</b>		
#+ LWW14-73915 (LCS Zoo	18				45.5			
MT1265	52	49	<b>62</b>		<b>82.9</b>	<b>63.7</b>	<b>58.6</b>	
MT1547	55	<b>52</b>			76.0	<b>60.9</b>		
MT1563	<b>61</b>	<b>58</b>			60.6	<b>52.1</b>		
MT1564	44	46			57.2	<b>48.3</b>		
+ MT16101	21				44.9			
+ MT1642	39				63.4			
+ MT1683	53				<b>82.0</b>			
+ MT1687	<b>57</b>				69.8			
+ MT1688	<b>57</b>				67.5			
+ MT1695	25				47.3			
+ MTCS1601	<b>61</b>				69.8			
MTF1435	45	45			51.2	46.8		
+ MTF1631	53				73.8			
MTS1588	52	36			64.3	<b>51.1</b>		
+ MTV1681	<b>57</b>				74.8			
MTW1491	56	50			72.9	<b>55.0</b>		
Northern	49	43	<b>57</b>	<b>50</b>	<b>83.7</b>	<b>60.2</b>	<b>57.0</b>	<b>58.1</b>
#+ NSA10-2196	0				10.9			
+ Oahe	54				74.2			
# PSB13NEDH-7-140	54	51			<b>79.9</b>	<b>59.1</b>		
Ray	44	39			71.9	<b>57.7</b>		
# SY 517 CL2	39	30			60.3	43.1		
SY Clearstone 2CL	48	47	<b>56</b>	47	65.1	<b>53.2</b>	<b>50.7</b>	50.6
# SY Monument	<b>60</b>	<b>54</b>	<b>61</b>		<b>80.2</b>	<b>62.6</b>	<b>55.3</b>	
# SY Sunrise	55	<b>59</b>	<b>51</b>		70.8	<b>59.2</b>	<b>47.5</b>	
SY Wolf	51	44	48	42	70.9	<b>52.1</b>	<b>46.7</b>	48.4
Warhorse	52	51	<b>60</b>	<b>53</b>	69.1	<b>50.9</b>	<b>47.5</b>	49.2
# WB4483	51	47			72.3	<b>53.5</b>		
# WB4575	<b>57</b>	<b>53</b>			<b>80.5</b>	<b>62.0</b>		
# WB4614	53	43	<b>55</b>		66.0	<b>53.9</b>	<b>50.5</b>	
# WB4623CLP	12	6	9		41.7	23.5	20.5	
Yellowstone <sup>1/</sup>	<b>62</b>	-	-	-	72.7	-	-	-
<b>Average</b>	<b>47.3</b>	<b>44.2</b>	<b>50.4</b>	<b>46.6</b>	<b>66.9</b>	<b>53.0</b>	<b>48.0</b>	<b>50.0</b>
<b>LSD (0.05)</b>	<b>12.4</b>	<b>13.7</b>	<b>21.3</b>	<b>11.6</b>	<b>13.4</b>	<b>15.9</b>	<b>12.8</b>	<b>7.5</b>
<b>C.V.</b>	<b>15.1</b>	<b>15.3</b>	<b>25.3</b>	<b>16.8</b>	<b>10.0</b>	<b>14.7</b>	<b>15.9</b>	<b>10.1</b>

+ = new for 2018, # = paid entry

1/ Yellowstone mis-planted in 2017: no 2, 3, and 4 year data

**bold** = indicates highest value within a column

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

**Table 31. 2015-2018 Intrastate Winter Wheat Test (Exp. 35): Combined Locations Heading Date, Height, and Lodging**

Cultivar/Line	Heading Date (Julian)				Plant Height (in)				Lodging %
	2018	2017-18	2016-18	2015-18	2018	2017-18	2016-18	2015-18	2016
location-years	8	14	21	27	9	15	24	30	1
#+ 07CL046-2 (SY Legend CL)	157.8				28.5				
#+ AAC Wildfire	164.7				33.5				
Bearpaw	160.5	158.0	157.2	157.1	30.1	29.8	31.3	31.5	1
Brawl CLP	154.7	152.7	152.1	152.1	28.6	29.4	31.7	31.8	0
# CO13003C (Byrd CL Plus)	157.0	155.0			32.1	31.8			
Decade	159.2	157.3	156.6	156.6	31.4	30.9	32.2	32.1	20
FourOsix	160.0	158.0	157.3		29.7	29.6	31.2		0
#+ Incline AX	159.8				29.6				
Judee	160.5	158.5	157.6	157.5	31.2	30.7	32.0	32.3	12
# Keldin	160.9	158.7	157.6	157.6	30.9	30.9	32.2	32.3	0
# Langin	154.2	152.5			28.0	28.1			
# LCS Chrome	158.1	155.9			30.6	30.9			
# LCS Jet	161.9	159.5			27.5	27.5			
#+ LCS Link	156.8				28.7				
Loma	163.3	161.1	160.0	159.7	29.2	28.8	30.7	30.8	43
# Long Branch	154.9	153.1			27.9	28.9			
#+ LW14-73915 (LCS Zoom)	158.2				28.1				
MT1265	163.5	160.7	159.5	159.3	33.1	33.1	34.8	35.0	13
MT1547	160.4	158.2			30.4	30.5			
MT1563	162.4	159.9			32.8	32.8			
MT1564	156.6	154.6			30.1	30.8			
+ MT16101	158.8				31.5				
+ MT1642	164.6				32.1				
+ MT1683	161.9				32.8				
+ MT1687	158.0				29.8				
+ MT1688	157.5				29.3				
+ MT1695	157.7				29.6				
+ MTCS1601	160.7				31.0				
MTF1435	163.5	161.1			38.3	38.3			
+ MTF1631	162.4				37.2				
MTS1588	162.0	159.7			28.3	28.3			
+ MTV1681	160.9				31.1				
MTW1491	161.8	159.6	158.7		32.2	32.1	33.8		22
Northern	162.9	160.7	159.7	159.5	31.0	30.3	32.1	32.5	14
#+ NSA10-2196	160.3				28.1				
+ Oahe	157.3				33.1				
# PSB13NEDH-7-140	158.6	156.8			32.1	32.2			
Ray	164.9	162.7			35.9	35.6			
# SY 517 CL2	155.0	152.8			28.6	28.4			
SY Clearstone 2CL	162.8	160.0	158.7	158.5	34.0	33.6	35.1	35.2	0
# SY Monument	158.4	156.4	156.0	155.9	29.1	29.5	31.6	31.8	0
# SY Sunrise	157.3	155.2	154.5	154.5	26.0	26.5	28.6	28.7	0
SY Wolf	156.9	155.5	155.1	155.3	28.1	28.8	31.1	31.1	0
Warhorse	161.9	159.7	158.8	158.7	29.8	29.6	31.3	31.5	15
# WB4483	162.9	160.5	159.7		30.1	29.3	31.1		7
# WB4575	160.6	158.3	157.4		29.1	28.9	30.4		2
# WB4614	161.1	158.5	157.4	157.4	29.5	29.2	30.9	31.0	1
# WB4623CLP	161.4	158.9	157.9	158.0	29.1	29.3	31.2	31.1	14
Yellowstone <sup>1/</sup>	162.7				32.6				
<b>Average</b>	<b>160.0</b>	<b>157.8</b>	<b>157.5</b>	<b>157.2</b>	<b>30.6</b>	<b>30.5</b>	<b>31.7</b>	<b>31.9</b>	<b>8.0</b>
<b>LSD (0.05)</b>	<b>1.1</b>	<b>0.8</b>	<b>0.6</b>	<b>0.6</b>	<b>1.4</b>	<b>1.1</b>	<b>0.8</b>	<b>0.7</b>	<b>16.6</b>
<b>C.V.</b>	<b>0.7</b>	<b>0.7</b>	<b>0.7</b>	<b>0.7</b>	<b>4.9</b>	<b>4.9</b>	<b>4.4</b>	<b>4.3</b>	<b>125</b>

+ = new for 2017, # = paid entry

1/ Yellowstone mis-planted in 2017: no 2, 3, and 4 year data

**bold** = indicates highest value within a column

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

**Table 32. 2015-2018 Intrastate Winter Wheat Test (Exp. 35): Combined Locations Sawfly Cutting and Stripe Rust**

Cultivar/Line	Test Average above 10%				no data for 2018 <sup>2/</sup>		
	Sawfly Cutting (%) Conrad, Havre and Ft. Benton				Stripe Rust (%) Bozeman, Huntley and Kalispell		
	2018	2017-18	2016-18	2015-18	2017	2016-17	2015-17
location-years	2	3	4	5	2	4	6
#+ 07CL046-2 (SY Legend CL)	<b>22</b>						
#+ AAC Wildfire	<b>13</b>						
Bearpaw	<b>17</b>	<b>17</b>	<b>15</b>	<b>12</b>	89	86	78
Brawl CLP	<b>24</b>	37	38	31	70	75	70
# CO13003C (Byrd CL Plus)	34	47			<b>10</b>		
Decade	<b>25</b>	29	25	22	74	75	72
FourOsix	51	57	46		<b>6</b>	<b>14</b>	
#+ Incline AX	<b>29</b>						
Judee	<b>19</b>	<b>20</b>	<b>17</b>	<b>13</b>	<b>5</b>	<b>13</b>	<b>11</b>
# Keldin	37	41	37	33	41	45	37
# Langin	43	59			28		
# LCS Chrome	53	66			<b>2</b>		
# LCS Jet	<b>32</b>	37			<b>2</b>		
#+ LCS Link	<b>32</b>						
Loma	<b>14</b>	<b>18</b>	<b>16</b>	<b>13</b>	<b>4</b>	<b>13</b>	<b>11</b>
# Long Branch	35	47			<b>6</b>		
#+ LWW14-73915 (LCS Zoom	60						
MT1265	46	53	44	37	<b>10</b>	<b>23</b>	<b>19</b>
MT1547	57	66			<b>4</b>		
MT1563	45	54			<b>12</b>		
MT1564	50	49			<b>3</b>		
+ MT16101	46						
+ MT1642	<b>26</b>						
+ MT1683	59						
+ MT1687	47						
+ MT1688	48						
+ MT1695	54						
+ MTCS1601	<b>24</b>						
MTF1435	<b>32</b>	40					
+ MTF1631	37				<b>11</b>		
MTS1588	<b>2</b>	<b>2</b>			<b>5</b>		
+ MTV1681	41						
MTW1491	49	54	51		<b>7</b>		
Northern	<b>30</b>	41	32	26	<b>8</b>	<b>20</b>	<b>15</b>
#+ NSA10-2196	60						
+ Oahe	44						
# PSB13NEDH-7-140	39	56			<b>15</b>		
Ray	<b>32</b>	42			<b>11</b>		
# SY 517 CL2	<b>26</b>	27			31		
SY Clearstone 2CL	53	61	52	44	<b>16</b>	32	25
# SY Monument	45	54	47	39	<b>4</b>	<b>11</b>	<b>11</b>
# SY Sunrise	<b>33</b>	47	49	40	<b>11</b>	<b>18</b>	<b>17</b>
SY Wolf	<b>14</b>	<b>24</b>	22	19	21	27	<b>22</b>
Warhorse	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>5</b>	<b>13</b>	<b>10</b>
# WB4483	<b>21</b>	28	23		69	62	
# WB4575	<b>22</b>	31	25		96	91	
# WB4614	<b>25</b>	35	32	27	21	37	33
# WB4623CLP	<b>28</b>	36	36	31	<b>5</b>	<b>11</b>	<b>10</b>
Yellowstone <sup>1/</sup>	56	-	-		-	-	-
<b>Average</b>	<b>35.3</b>	<b>39.8</b>	<b>32.0</b>	<b>25.9</b>	<b>22.6</b>	<b>32.3</b>	<b>28.1</b>
<b>LSD (0.05)</b>	<b>32.0</b>	<b>22.4</b>	<b>18.1</b>	<b>15.9</b>	<b>18.2</b>	<b>16.9</b>	<b>12.6</b>
<b>C.V.</b>	<b>45</b>	<b>35</b>	<b>40</b>	<b>48</b>	<b>38</b>	<b>37</b>	<b>39</b>

+ = new for 2017, # = paid entry

1/ Yellowstone mis-planted in 2017: no 2, 3, and 4 year data

**bold** = indicates highest value within a column

2/ very limited stripe rust in Bozeman, no mid-season note taken at Kalispell in 2018

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