

**2018 MONTANA WINTER WHEAT OFF-STATION TESTS
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Table 33. 2018 Off-Station Winter Wheat Tests: Summary

Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Plant height in	Sawfly cutting %	Protein %
+ = new for 2018						
	Locations	14	14	14	4	14
Keldin	Westbred, 2011	76.2	61.4	29.1	58	13.0
+ LCS Jet	Limagrain Cereal Seeds, 2015	75.9	58.0	26.4	71	13.4
Northern	Montana, 2015	74.1	60.7	29.4	71	13.4
Loma	Montana, 2016	73.0	60.0	27.8	42	13.3
+ MT1642	Yellowstone/Madsen//Yellowstone	72.9	58.8	30.6	61	12.9
MTS1588	MT0598/98X366E29-1	72.5	61.4	27.6	3	13.3
SY Monument	Syngenta, 2015	71.9	60.6	27.5	59	13.1
Decade	Montana/North Dakota, 2010	71.8	61.1	30.1	55	13.2
SY Clearstone 2CL	Montana/Syngenta, 2012	71.5	59.5	32.5	76	13.1
+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3/MTCL03	71.4	61.8	28.8	46	13.3
Yellowstone	Montana 2005	70.2	59.8	31.1	70	12.6
MT1265	Yellowstone*4/KS96WGRC40 (Lr41, wcm)	70.1	59.5	31.8	69	13.4
Ray	Montana, 2018 (MTF1432)	69.5	58.4	35.2	71	13.1
Warhorse	Montana, 2013	69.5	60.6	29.4	8	13.8
Judee	Montana, 2011	69.1	61.5	30.0	58	13.3
+ MT1563	Yellowstone*2/PI640431	69.1	59.9	31.3	63	13.9
MTW1491	MT08189//MT08187/(MTW08166, WB3768 sit	69.0	60.7	30.5	74	13.7
+ WB4483	WestBred, 2016	68.9	60.3	28.5	50	13.6
SY Wolf	Syngenta (AgriPro), 2010	68.4	61.6	28.1	46	13.2
FourOsix	Montana, 2018 (MT1465)	67.3	60.6	28.7	68	13.4
+ MT1547	Yellowstone/MT0684	66.9	60.5	28.6	72	12.9
+ MT1564	Yellowstone*2/PI640431	66.9	61.3	28.0	57	13.2
+ MTV1681	Yellowstone*2//WillowCreek/MT06129	66.1	59.9	29.5	45	13.2
Brawl CLP	Colorado Research Foundation, 2011	64.5	62.8	26.9	31	14.1
MTF1435	MT08186//Yellowstone(L)*2/98X168E1	56.6	59.4	37.1	66	13.2
Average		69.7	60.4	29.8	55.4	13.3
LSD (0.05)		5.0	0.6	1.0	17.8	0.3
C.V. (%)		9.6	1.4	4.7	22.8	3.2

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 34. 2018 Off-Station Winter Wheat Test (Exp. 3851): Turner (NARC)

Entry	Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Stand %	Plant height in	Falling number	Protein %
+ = new for 2018			LAT	LAT	LAT	RCB	LAT	LAT
lattice efficiency relative to RCB			159%	122%	121%		196%	126%
22	+ MT1642	Yellowstone/Madsen//Yellowstone	38.6	60.6	99	23.4	355	15.6
8	Northern	Montana, 2015	38.3	61.8	98	20.5	369	15.8
14	MTW1491	MT08189//MT08187/(MTW08166, W	37.6	62.0	99	21.7	372	15.2
10	MT1265	Yellowstone*4/KS96WGRC40 (Lr41,	36.9	61.8	100	24.4	374	15.7
1	Yellowstone	Montana 2005	36.1	61.4	99	21.2	360	15.3
5	Decade	Montana/North Dakota, 2010	35.7	61.8	96	20.8	350	16.3
21	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	35.5	62.1	96	22.7	352	15.8
9	Loma	Montana, 2016	35.4	61.8	98	17.1	337	16.1
25	+ WB4483	WestBred, 2016	35.0	61.7	96	19.7	335	15.4
19	+ MT1563	Yellowstone*2/PI640431	35.0	61.8	99	22.0	364	15.4
15	Ray	Montana, 2018 (MTF1432)	34.9	60.1	92	25.7	357	15.1
17	MTS1588	MT0598/98X366E29-1	34.5	62.0	97	20.1	336	15.3
13	FourOsix	Montana, 2018 (MT1465)	34.3	61.7	97	22.3	353	15.5
6	Keldin	Westbred, 2011	33.4	61.9	94	21.4	334	15.2
7	SY Clearstone 2CL	Montana/Syngenta, 2012	33.1	61.1	97	22.8	361	16.0
24	+ LCS Jet	Limagrain Cereal Seeds, 2015	32.6	58.8	93	17.2	318	14.6
16	MTF1435	MT08186//Yellowstone(L)*2/98X168f	32.2	60.5	94	23.2	322	14.6
2	Judee	Montana, 2011	31.6	62.6	99	21.1	322	16.6
3	Warhorse	Montana, 2013	31.5	60.4	85	20.2	365	15.7
11	SY Wolf	Syngenta (AgriPro), 2010	30.5	62.1	93	21.5	294	15.8
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	30.2	61.6	98	21.4	375	15.6
18	+ MT1547	Yellowstone/MT0684	29.9	61.7	96	20.0	354	15.4
20	+ MT1564	Yellowstone*2/PI640431	28.1	61.7	96	17.9	368	16.1
12	SY Monument	Syngenta, 2015	27.2	61.2	93	18.7	340	14.8
4	Brawl CLP	Colorado Research Foundation, 201	22.0	62.7	91	16.8	345	16.1
Average			33.2	61.5	95.8	21.0	348.4	15.5
LSD (0.05)			3.3	0.3	4.7	2.2	14.2	0.4
C.V. (%)			5.5	0.3	2.8	6.3	2.2	1.5
P-value (Varieties)			<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

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 35. 2018 Off-Station Winter Wheat Test (Exp. 3853): Loma (NARC)

Entry	Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Stand %	Plant height in	Sawfly cutting %	Falling number	Protein %
+ = new for 2018			LAT	LAT	LAT	LAT	LAT	LAT	LAT
		lattice efficiency relative to RCB	158%	217%	192%	121%	140%	122%	172%
17	MTS1588	MT0598/98X366E29-1	66.5	61.0	91.4	25.4	7.2	349	13.6
8	Northern	Montana, 2015	63.3	60.1	89.3	25.8	75.7	373	14.3
12	SY Monument	Syngenta, 2015	63.3	60.3	90.6	26.6	65.8	347	12.8
6	Keldin	Westbred, 2011	62.7	60.2	89.0	27.2	80.7	367	13.9
5	Decade	Montana/North Dakota, 2010	61.5	60.0	86.8	25.7	76.5	359	14.6
4	Brawl CLP	Colorado Research Foundation, 2011	61.4	62.1	83.6	25.9	73.9	344	14.9
19	+ MT1563	Yellowstone*2/PI640431	60.6	59.0	85.1	29.3	58.4	364	13.8
7	SY Clearstone 2CL	Montana/Syngenta, 2012	59.9	58.5	87.6	28.0	79.4	382	14.5
13	FourOsix	Montana, 2018 (MT1465)	59.6	59.6	102.5	24.0	74.6	362	13.9
10	MT1265	Yellowstone*4/KS96WGRC40 (Lr41,	59.5	59.1	89.2	26.6	76.4	380	14.2
14	MTW1491	MT08189//MT08187/(MTW08166, W	59.2	60.1	86.5	26.5	79.6	378	13.8
15	Ray	Montana, 2018 (MTF1432)	59.2	57.6	79.4	29.8	67.1	370	14.6
1	Yellowstone	Montana 2005	58.9	58.9	91.4	26.2	84.8	373	14.1
11	SY Wolf	Syngenta (AgriPro), 2010	58.2	61.5	87.3	28.3	59.1	343	14.2
9	Loma	Montana, 2016	57.7	58.5	83.3	22.2	32.3	344	14.5
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	57.5	59.8	91.8	26.2	41.7	379	14.6
2	Judee	Montana, 2011	56.8	60.2	96.7	28.6	65.0	350	13.9
16	MTF1435	MT08186//Yellowstone(L)*2/98X168E	55.4	58.0	88.4	32.6	63.1	367	14.0
22	+ MT1642	Yellowstone/Madsen//Yellowstone	55.0	58.6	89.7	27.5	77.5	381	15.0
20	+ MT1564	Yellowstone*2/PI640431	54.6	61.3	99.6	27.7	65.4	364	13.7
21	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	54.5	60.8	96.7	27.1	48.4	362	14.0
25	+ WB4483	WestBred, 2016	53.9	59.3	96.1	24.4	61.6	361	14.8
24	+ LCS Jet	Limagrain Cereal Seeds, 2015	51.4	56.7	81.1	21.4	89.9	350	13.9
18	+ MT1547	Yellowstone/MT0684	50.1	58.8	87.4	24.0	78.7	346	14.2
3	Warhorse	Montana, 2013	43.5	59.5	106.5	26.3	17.2	376	14.6
Average			57.8	59.6	90.3	26.5	64.0	362.7	14.2
LSD (0.05)			4.0	1.0	13.5	2.4	30.7	16.2	0.5
C.V. (%)			3.8	0.9	8.1	5.0	26.2	2.5	2.0
P-value (Varieties)			<.0001	<.0001	0.0434	<.0001	<.0001	<.0001	<.0001

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 36. 2018 Off-Station Winter Wheat Test (Exp. 3862): The Knees (WTARC)

Entry	Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Plant height in	Sawfly/	
						Lodging %	Protein %
+ = new for 2018			LAT	LAT	RCB	LAT	LAT
		lattice efficiency relative to RCB	121%	125%		107%	110%
9	Loma	Montana, 2016	67.7	58.2	23.3	35.9	13.7
21	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	64.3	58.5	26.8	42.6	13.5
17	MTS1588	MT0598/98X366E29-1	62.9	57.0	23.8	0.0	13.5
22	+ MT1642	Yellowstone/Madsen//Yellowstone	62.8	55.4	27.5	57.7	13.8
2	Judee	Montana, 2011	62.3	56.8	25.3	66.8	14.3
15	Ray	Montana, 2018 (MTF1432)	62.3	54.3	31.3	82.4	13.3
20	+ MT1564	Yellowstone*2/PI640431	61.7	57.0	25.0	50.4	13.2
4	Brawl CLP	Colorado Research Foundation, 201	60.5	60.1	24.7	13.9	14.1
25	+ WB4483	WestBred, 2016	60.2	56.6	23.0	37.2	14.4
6	Keldin	Westbred, 2011	60.2	57.7	23.8	36.6	14.3
3	Warhorse	Montana, 2013	60.1	57.4	23.3	1.6	14.3
8	Northern	Montana, 2015	59.1	56.3	27.2	83.8	13.9
19	+ MT1563	Yellowstone*2/PI640431	57.3	56.9	28.0	61.3	13.2
14	MTW1491	MT08189//MT08187/(MTW08166, W	56.8	56.2	27.2	78.0	13.5
11	SY Wolf	Syngenta (AgriPro), 2010	56.5	58.9	24.2	26.7	13.9
1	Yellowstone	Montana 2005	56.5	55.1	25.7	73.6	13.7
12	SY Monument	Syngenta, 2015	56.3	55.8	23.3	45.8	12.8
7	SY Clearstone 2CL	Montana/Syngenta, 2012	55.9	55.1	28.5	80.1	13.4
10	MT1265	Yellowstone*4/KS96WGRC40 (Lr41,	54.7	55.0	27.3	63.8	13.7
24	+ LCS Jet	Limagrain Cereal Seeds, 2015	54.2	53.6	20.0	77.9	13.4
13	FourOsix	Montana, 2018 (MT1465)	54.0	55.5	25.0	66.4	13.6
16	MTF1435	MT08186//Yellowstone(L)*2/98X168E	53.0	55.3	33.7	75.7	13.5
5	Decade	Montana/North Dakota, 2010	52.2	57.4	23.0	45.2	14.6
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	50.7	58.0	24.3	32.0	14.1
18	+ MT1547	Yellowstone/MT0684	50.7	55.9	23.3	68.1	13.6
Average			58.1	56.6	25.5	52.1	13.7
LSD (0.05)			7.9	1.8	3.0	23.8	0.5
C.V. (%)			7.5	1.8	7.2	26.0	1.9
P-value (Varieties)			0.0034	<.0001	<.0001	<.0001	<.0001

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 37. 2018 Off-Station Winter Wheat Test (Exp. 3864): Cut Bank (WTARC)

Entry	Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Plant height in	Lodg- ing %	Protein %
+ = new for 2018			LAT	LAT	RCB	LAT	LAT
		lattice efficiency relative to RCB	116%	408%		109%	148%
1	Yellowstone	Montana 2005	87.2	60.6	29.0	45.4	12.5
22	+ MT1642	Yellowstone/Madsen//Yellowstone	87.2	61.2	26.7	37.2	12.9
9	Loma	Montana, 2016	87.0	61.3	23.7	3.5	12.7
6	Keldin	Westbred, 2011	85.2	62.3	23.0	11.3	11.6
25	+ WB4483	WestBred, 2016	83.9	62.0	25.3	28.7	12.4
7	SY Clearstone 2CL	Montana/Syngenta, 2012	83.4	59.7	28.0	22.8	13.0
17	MTS1588	MT0598/98X366E29-1	82.5	61.7	23.0	6.5	12.2
24	+ LCS Jet	Limagrain Cereal Seeds, 2015	79.3	58.6	22.7	6.2	12.1
15	Ray	Montana, 2018 (MTF1432)	78.6	59.2	31.3	65.4	12.8
19	+ MT1563	Yellowstone*2/PI640431	77.7	61.0	26.7	30.2	12.7
2	Judee	Montana, 2011	77.3	62.0	27.0	11.1	13.5
14	MTW1491	MT08189//MT08187/(MTW08166, W	75.8	62.3	24.7	20.2	12.6
8	Northern	Montana, 2015	75.3	61.8	22.7	11.6	12.4
21	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	75.0	62.1	22.7	21.9	12.8
10	MT1265	Yellowstone*4/KS96WGRC40 (Lr41,	74.5	61.4	27.0	49.4	12.3
11	SY Wolf	Syngenta (AgriPro), 2010	70.1	61.9	21.7	15.5	12.7
5	Decade	Montana/North Dakota, 2010	69.3	61.8	22.7	12.7	13.8
3	Warhorse	Montana, 2013	68.8	60.6	23.0	0.0	13.5
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	67.8	60.8	23.3	33.3	13.0
13	FourOsix	Montana, 2018 (MT1465)	65.8	61.8	23.7	12.7	12.9
18	+ MT1547	Yellowstone/MT0684	65.4	60.9	23.0	18.0	13.2
12	SY Monument	Syngenta, 2015	63.6	61.6	18.7	12.8	12.2
16	MTF1435	MT08186//Yellowstone(L)*2/98X168E	63.2	60.5	31.7	72.8	13.1
20	+ MT1564	Yellowstone*2/PI640431	62.4	61.0	21.3	25.3	12.9
4	Brawl CLP	Colorado Research Foundation, 2011	62.3	63.4	20.7	35.5	14.2
Average			74.7	61.3	24.5	24.4	12.8
LSD (0.05)			15.9	1.1	4.5	26.6	1.0
C.V. (%)			11.9	0.9	11.3	62	4.3
P-value (Varieties)			0.0119	<.0001	<.0001	<.0001	0.0065

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 38. 2018 Off-Station Winter Wheat Test (Exp. 3865): Shelby/Devon (WTARC)

Entry	Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Plant height in	Cutting/	
						Lodg- ing %	Protein %
+ = new for 2018			LAT	LAT	LAT	RCB	LAT
		lattice efficiency relative to RCB	282%	237%	120%		261%
22	+ MT1642	Yellowstone/Madsen//Yellowstone	50.2	57.8	23.3	26.6	12.6
17	MTS1588	MT0598/98X366E29-1	49.2	60.2	19.2	1.2	12.3
8	Northern	Montana, 2015	46.7	58.9	20.9	31.8	12.6
9	Loma	Montana, 2016	45.1	58.5	20.4	10.4	12.8
14	MTW1491	MT08189//MT08187/(MTW08166, W	44.6	58.3	22.6	40.0	12.5
1	Yellowstone	Montana 2005	44.2	58.0	23.6	23.5	12.5
19	+ MT1563	Yellowstone*2/PI640431	43.8	58.5	23.3	38.6	12.3
24	+ LCS Jet	Limagrain Cereal Seeds, 2015	43.1	55.4	19.5	21.8	12.0
2	Judee	Montana, 2011	41.7	60.1	23.0	11.6	12.9
25	+ WB4483	WestBred, 2016	41.6	58.4	20.8	13.3	13.1
13	FourOsix	Montana, 2018 (MT1465)	41.3	58.4	22.3	30.0	12.3
21	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	41.1	59.8	20.9	13.0	12.7
3	Warhorse	Montana, 2013	41.0	59.4	23.6	1.4	13.3
7	SY Clearstone 2CL	Montana/Syngenta, 2012	40.9	57.7	23.0	42.9	12.4
10	MT1265	Yellowstone*4/KS96WGRC40 (Lr41,	39.9	57.7	23.8	36.7	12.9
6	Keldin	Westbred, 2011	39.9	59.5	20.1	26.8	11.9
18	+ MT1547	Yellowstone/MT0684	39.8	58.3	24.1	40.3	12.6
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	39.2	57.4	20.2	21.8	13.0
20	+ MT1564	Yellowstone*2/PI640431	38.8	58.8	19.5	15.1	13.2
5	Decade	Montana/North Dakota, 2010	37.8	58.9	21.3	15.0	12.7
15	Ray	Montana, 2018 (MTF1432)	37.6	56.0	29.9	33.6	12.6
11	SY Wolf	Syngenta (AgriPro), 2010	36.9	59.6	20.0	21.4	12.8
16	MTF1435	MT08186//Yellowstone(L)*2/98X168E	36.3	57.7	28.5	29.9	12.6
12	SY Monument	Syngenta, 2015	33.9	57.0	20.7	25.0	12.6
4	Brawl CLP	Colorado Research Foundation, 201	32.5	61.5	18.5	13.0	13.4
Average			41.1	58.5	22.1	23.4	12.7
LSD (0.05)			5.0	0.8	2.6	12.8	0.7
C.V. (%)			6.6	0.8	6.6	32.7	3.1
P-value (Varieties)			<.0001	<.0001	<.0001	<.0001	0.0183

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 39. 2018 Off-Station Winter Wheat Test (Exp. 3866): Choteau (WTARC)

Entry	Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Plant height in	Sawfly/	
						Lodg- ing %	Protein %
+ = new for 2018			LAT	LAT	RCB	RCB	LAT
		lattice efficiency relative to RCB	106%	137%			108%
17	MTS1588	MT0598/98X366E29-1	81.9	59.2	27.2	4	15.3
4	Brawl CLP	Colorado Research Foundation, 2011	80.3	62.6	25.5	23	14.3
21	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	76.0	60.6	25.8	78	14.5
12	SY Monument	Syngenta, 2015	74.3	58.8	26.5	98	14.0
9	Loma	Montana, 2016	74.1	57.3	26.1	90	15.3
18	+ MT1547	Yellowstone/MT0684	74.1	57.7	28.0	99	14.5
5	Decade	Montana/North Dakota, 2010	73.8	59.4	29.9	82	15.2
20	+ MT1564	Yellowstone*2/PI640431	73.4	60.4	26.9	96	14.4
8	Northern	Montana, 2015	72.2	59.4	26.6	94	14.6
13	FourOsix	Montana, 2018 (MT1465)	71.9	57.5	25.8	100	14.8
24	+ LCS Jet	Limagrain Cereal Seeds, 2015	71.7	55.7	25.5	96	14.7
6	Keldin	Westbred, 2011	70.8	60.5	27.3	88	15.2
2	Judee	Montana, 2011	70.6	58.7	27.5	87	15.8
1	Yellowstone	Montana 2005	70.6	57.6	27.9	98	14.8
14	MTW1491	MT08189//MT08187/(MTW08166, W	68.4	58.8	28.4	97	14.5
7	SY Clearstone 2CL	Montana/Syngenta, 2012	67.5	57.4	28.1	100	14.8
3	Warhorse	Montana, 2013	66.3	58.2	26.1	12	14.9
19	+ MT1563	Yellowstone*2/PI640431	65.8	57.9	28.5	93	14.7
22	+ MT1642	Yellowstone/Madsen//Yellowstone	65.5	56.7	29.2	83	15.4
11	SY Wolf	Syngenta (AgriPro), 2010	65.2	60.8	25.8	76	15.2
10	MT1265	Yellowstone*4/KS96WGRC40 (Lr41,	62.7	57.2	28.8	97	15.1
15	Ray	Montana, 2018 (MTF1432)	62.6	56.8	31.8	99	14.4
25	+ WB4483	WestBred, 2016	62.6	57.4	26.4	87	16.5
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	59.2	57.5	28.3	83	15.2
16	MTF1435	MT08186//Yellowstone(L)*2/98X168E	58.2	57.3	35.4	93	14.6
Average			69.6	58.5	27.7	82.1	14.9
LSD (0.05)			9.3	1.3	2.9	14.5	0.6
C.V. (%)			7.7	1.3	4.7	28.4	6.8
P-value (Varieties)			0.0003	<.0001	<.0001	<.0001	<.0001

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 40. 2018 Off-Station Winter Wheat Test (Exp. 3871): Denton (CARC)

*** Spring Wheat Contamination - data not used ***						
Entry	Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Plant height in	Protein %
+ = new for 2018			LAT	RCB	LAT	LAT
		lattice efficiency relative to RCB	146%		110%	151%
1	Yellowstone	Montana 2005	53.1	61.7	29.6	11.5
2	Judee	Montana, 2011	54.7	60.8	29.8	10.9
3	Warhorse	Montana, 2013	52.5	61.5	27.7	11.4
4	Brawl CLP	Colorado Research Foundation, 2011	55.4	61.1	31.0	11.1
5	Decade	Montana/North Dakota, 2010	60.8	61.7	28.6	11.0
6	Keldin	Westbred, 2011	49.7	61.0	31.3	11.2
7	SY Clearstone 2CL	Montana/Syngenta, 2012	56.9	61.2	30.2	11.0
8	Northern	Montana, 2015	55.0	61.5	29.5	11.2
9	Loma	Montana, 2016	52.1	61.9	30.5	11.4
10	MT1265	Yellowstone*4/KS96WGRC40 (Lr41,	55.6	61.0	32.3	11.2
11	SY Wolf	Syngenta (AgriPro), 2010	52.3	61.6	32.2	11.0
12	SY Monument	Syngenta, 2015	49.4	61.7	30.6	11.6
13	FourOsix	Montana, 2018 (MT1465)	48.8	62.0	27.8	11.2
14	MTW1491	MT08189//MT08187/(MTW08166, W	56.7	61.3	27.3	11.4
15	Ray	Montana, 2018 (MTF1432)	50.7	61.8	29.6	10.8
16	MTF1435	MT08186//Yellowstone(L)*2/98X168E	59.8	62.0	32.4	10.6
17	MTS1588	MT0598/98X366E29-1	55.5	60.9	30.4	11.1
18	+ MT1547	Yellowstone/MT0684	60.0	62.4	28.8	11.0
19	+ MT1563	Yellowstone*2/PI640431	55.5	61.0	29.9	11.5
20	+ MT1564	Yellowstone*2/PI640431	57.3	61.8	28.6	10.8
21	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	56.6	61.6	30.9	10.6
22	+ MT1642	Yellowstone/Madsen//Yellowstone	49.5	60.9	30.7	11.3
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	48.8	61.3	28.4	11.2
24	+ LCS Jet	Limagrain Cereal Seeds, 2015	61.2	61.1	29.6	10.8
25	+ WB4483	WestBred, 2016	53.6	61.6	31.4	10.8
Average			54.5	61.5	30.0	11.1
LSD (0.05)			ns	ns	ns	ns
C.V. (%)			14.4	1.1	8.7	4.8
P-value (Varieties)			0.8812	0.4285	0.7465	0.7888

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 41. 2018 Off-Station Winter Wheat Test (Exp. 3872): Geraldine (CARC)

Entry	Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Plant height in	Protein %
+ = new for 2018			RCB	LAT	RCB	LAT
lattice efficiency relative to RCB				192%		209%
6	Keldin	Westbred, 2011	85.7	64.2	30.0	12.1
24	+ LCS Jet	Limagrain Cereal Seeds, 2015	82.9	60.8	27.3	12.0
21	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	82.5	64.2	30.0	12.2
10	MT1265	Yellowstone*4/KS96WGRC40 (Lr41,	82.1	62.9	33.0	11.7
19	+ MT1563	Yellowstone*2/PI640431	81.5	63.4	32.7	11.4
7	SY Clearstone 2CL	Montana/Syngenta, 2012	81.1	62.8	37.0	11.8
22	+ MT1642	Yellowstone/Madsen//Yellowstone	80.5	62.8	32.0	11.8
9	Loma	Montana, 2016	80.0	63.0	31.0	11.7
5	Decade	Montana/North Dakota, 2010	79.7	64.0	31.7	12.8
2	Judee	Montana, 2011	78.9	64.7	32.3	12.3
8	Northern	Montana, 2015	78.7	63.4	31.7	12.3
12	SY Monument	Syngenta, 2015	78.4	63.3	29.0	11.7
11	SY Wolf	Syngenta (AgriPro), 2010	78.3	64.2	31.0	12.3
17	MTS1588	MT0598/98X366E29-1	76.6	64.2	28.7	11.9
15	Ray	Montana, 2018 (MTF1432)	76.2	61.8	37.0	12.0
25	+ WB4483	WestBred, 2016	75.9	63.5	30.3	12.0
14	MTW1491	MT08189//MT08187/(MTW08166, W	75.5	63.2	32.3	11.4
4	Brawl CLP	Colorado Research Foundation, 201	75.5	65.1	30.3	13.5
20	+ MT1564	Yellowstone*2/PI640431	75.1	63.9	29.3	11.7
3	Warhorse	Montana, 2013	74.3	63.6	31.7	12.8
1	Yellowstone	Montana 2005	74.3	62.8	33.7	11.7
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	73.2	62.9	32.7	11.9
13	FourOsix	Montana, 2018 (MT1465)	70.0	63.6	30.3	11.9
18	+ MT1547	Yellowstone/MT0684	68.3	63.3	30.7	11.9
16	MTF1435	MT08186//Yellowstone(L)*2/98X168E	56.0	62.4	41.7	12.6
Average			76.9	63.3	31.9	12.1
LSD (0.05)			6.6	0.5	3.0	0.3
C.V. (%)			5.2	0.4	5.8	1.3
P-value (Varieties)			<.0001	<.0001	<.0001	<.0001

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 42. 2018 Off-Station Winter Wheat Test (Exp. 3875): Belt (CARC)

Entry	Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Plant height in	Protein %
+ = new for 2018			LAT	LAT	RCB	LAT
lattice efficiency relative to RCB			153%	136%		244%
9	Loma	Montana, 2016	80.3	61.6	29.9	11.8
12	SY Monument	Syngenta, 2015	79.1	60.5	29.8	11.8
22	+ MT1642	Yellowstone/Madsen//Yellowstone	77.7	60.7	31.9	11.9
17	MTS1588	MT0598/98X366E29-1	75.2	62.2	29.8	12.3
25	+ WB4483	WestBred, 2016	74.2	62.1	30.1	12.3
3	Warhorse	Montana, 2013	73.7	61.4	32.8	12.9
19	+ MT1563	Yellowstone*2/PI640431	73.5	61.2	33.5	11.7
7	SY Clearstone 2CL	Montana/Syngenta, 2012	73.5	60.8	34.9	11.5
5	Decade	Montana/North Dakota, 2010	73.5	61.9	32.7	12.5
6	Keldin	Westbred, 2011	72.7	60.8	30.4	13.3
21	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	72.4	62.5	28.8	12.5
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	71.9	60.7	31.7	12.1
13	FourOsix	Montana, 2018 (MT1465)	71.4	61.7	30.7	12.0
20	+ MT1564	Yellowstone*2/PI640431	70.5	62.3	29.8	12.1
8	Northern	Montana, 2015	70.3	61.1	31.9	12.8
2	Judee	Montana, 2011	70.2	62.2	32.7	12.7
14	MTW1491	MT08189//MT08187/(MTW08166, W	69.7	61.0	32.5	11.8
24	+ LCS Jet	Limagrains Cereal Seeds, 2015	69.6	58.2	27.7	11.8
18	+ MT1547	Yellowstone/MT0684	69.2	61.6	32.2	11.8
1	Yellowstone	Montana 2005	68.7	60.9	32.5	11.7
11	SY Wolf	Syngenta (AgriPro), 2010	68.4	62.0	27.1	12.8
10	MT1265	Yellowstone*4/KS96WGRC40 (Lr41,	66.8	60.1	33.0	11.7
15	Ray	Montana, 2018 (MTF1432)	65.6	59.5	35.3	11.8
4	Brawl CLP	Colorado Research Foundation, 201	57.4	62.1	28.3	13.6
16	MTF1435	MT08186//Yellowstone(L)*2/98X168E	57.1	60.6	42.4	12.5
Average			70.9	61.2	31.7	12.2
LSD (0.05)			9.0	0.8	3.0	0.5
C.V. (%)			6.9	0.7	5.5	2.3
P-value (Varieties)			0.0015	<.0001	<.0001	<.0001

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 ($\alpha = 0.05$)

Table 43. 2018 Off-Station Winter Wheat Test (Exp. 3876): Highwood (CARC)

Entry	Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Plant height in	Protein %
+ = new for 2018			LAT	LAT	LAT	LAT
		lattice efficiency relative to RCB	126%	210%	105%	242%
2	Judee	Montana, 2011	50.8	64.4	25.3	13.8
12	SY Monument	Syngenta, 2015	46.4	63.6	24.4	12.8
7	SY Clearstone 2CL	Montana/Syngenta, 2012	45.9	63.0	27.2	12.9
5	Decade	Montana/North Dakota, 2010	45.2	63.5	27.2	14.1
3	Warhorse	Montana, 2013	43.3	63.1	25.6	14.1
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	39.9	63.2	25.4	13.2
24	+ LCS Jet	Limagrain Cereal Seeds, 2015	39.4	61.3	22.2	13.4
19	+ MT1563	Yellowstone*2//PI640431	39.3	63.5	25.1	13.3
13	FourOsix	Montana, 2018 (MT1465)	38.9	63.5	24.3	13.6
25	+ WB4483	WestBred, 2016	37.0	63.9	22.7	14.8
17	MTS1588	MT0598/98X366E29-1	36.7	63.0	22.2	14.2
9	Loma	Montana, 2016	36.6	63.0	22.2	14.6
18	+ MT1547	Yellowstone/MT0684	36.0	63.3	22.8	13.7
14	MTW1491	MT08189//MT08187/(MTW08166, W	36.0	63.3	22.8	13.3
1	Yellowstone	Montana 2005	35.2	63.1	24.8	14.3
22	+ MT1642	Yellowstone/Madsen//Yellowstone	34.6	63.1	24.6	14.5
10	MT1265	Yellowstone*4//KS96WGRC40 (Lr41,	34.5	63.4	23.9	14.0
8	Northern	Montana, 2015	33.8	63.5	22.5	14.8
6	Keldin	Westbred, 2011	32.6	63.1	24.5	14.9
21	+ MTCS1601	MTS0531/7//MTS0532/6/96X17E69/3	31.4	63.0	23.2	14.6
15	Ray	Montana, 2018 (MTF1432)	31.1	62.5	28.8	13.9
11	SY Wolf	Syngenta (AgriPro), 2010	29.8	63.7	22.7	14.8
20	+ MT1564	Yellowstone*2//PI640431	26.9	63.8	21.2	14.5
16	MTF1435	MT08186//Yellowstone(L)*2//98X168E	26.1	62.7	27.6	13.6
4	Brawl CLP	Colorado Research Foundation, 201	21.5	63.7	21.1	15.4
	Average		36.4	63.2	24.2	14.0
	LSD (0.05)		8.8	0.5	2.2	0.9
	C.V. (%)		13.3	0.4	5.2	3.6
	P-value (Varieties)		<.0001	<.0001	<.0001	<.0001

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 44. 2018 Off-Station Winter Wheat Test (Exp. 3880): Huntley Irrigated (SARC)

Entry	Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Heading date	Plant height in	Lodg- ing (0-9)	Lodg- ing %	Protein %
+ = new for 2018			RCB	RCB	RCB	RCB	RCB	RCB	RCB
lattice efficiency relative to RCB									
24	+ LCS Jet	Limagrain Cereal Seeds, 2015	135.3	58.3	160.0	33.2	0.0	0.0	13.5
6	Keldin	Westbred, 2011	127.0	61.8	160.0	34.5	0.0	0.0	13.0
4	Brawl CLP	Colorado Research Foundation, 2011	117.6	61.7	152.7	32.5	0.0	0.0	13.5
12	SY Monument	Syngenta, 2015	115.5	60.4	157.3	31.1	0.0	0.0	13.3
11	SY Wolf	Syngenta (AgriPro), 2010	114.9	61.5	158.0	34.0	0.0	0.0	13.8
15	Ray	Montana, 2018 (MTF1432)	107.2	58.6	163.3	44.1	0.7	7.8	13.7
5	Decade	Montana/North Dakota, 2010	105.5	59.7	161.7	34.9	0.0	0.0	13.8
8	Northern	Montana, 2015	104.9	59.5	163.7	35.7	0.7	7.8	13.2
21	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	104.5	60.7	159.0	37.7	1.7	18.9	13.9
3	Warhorse	Montana, 2013	103.8	60.7	161.3	36.4	0.0	0.0	14.4
20	+ MT1564	Yellowstone*2/PI640431	101.6	58.8	157.0	34.4	0.7	7.8	13.6
7	SY Clearstone 2CL	Montana/Syngenta, 2012	100.1	58.3	161.0	40.9	3.7	41.1	13.8
22	+ MT1642	Yellowstone/Madsen//Yellowstone	99.9	56.6	162.0	36.2	0.7	7.8	14.8
1	Yellowstone	Montana 2005	96.0	58.5	165.3	40.0	0.7	7.8	13.3
18	+ MT1547	Yellowstone/MT0684	94.5	59.3	161.0	33.3	0.3	3.3	13.9
14	MTW1491	MT08189//MT08187/(MTW08166, W	93.4	58.9	162.0	35.3	1.0	11.1	13.5
17	MTS1588	MT0598/98X366E29-1	92.5	59.5	160.3	33.3	0.0	0.0	14.4
10	MT1265	Yellowstone*4/KS96WGRC40 (Lr41,	92.0	58.6	163.7	36.0	0.0	0.0	13.9
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	88.3	58.1	163.3	34.8	0.7	7.8	14.3
9	Loma	Montana, 2016	87.8	57.0	164.0	32.3	0.3	3.3	13.8
25	+ WB4483	WestBred, 2016	86.5	56.3	163.3	32.4	4.7	52.2	15.2
2	Judee	Montana, 2011	86.3	60.6	159.7	37.0	1.0	11.1	13.5
19	+ MT1563	Yellowstone*2/PI640431	84.3	57.2	162.3	35.3	0.0	0.0	14.1
13	FourOsix	Montana, 2018 (MT1465)	83.0	59.0	163.0	32.8	0.0	0.0	14.2
16	MTF1435	MT08186//Yellowstone(L)*2/98X168E	76.0	60.4	163.3	43.6	0.0	0.0	14.5
Average			99.9	59.2	161.1	35.7	0.7	7.8	13.9
LSD (0.05)			16.7	1.4	1.5	2.9	1.0	11.1	0.5
C.V. (%)			10.2	1.4	3.9	4.9	91.9	91.9	2.4
P-value (Varieties)									

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 45. 2018 Off-Station Winter Wheat Test (Exp. 3881): Rapelje (SARC)

Entry	Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Plant height in	Protein %
	+ = new for 2018		RCB	RCB	RCB	LAT
		lattice efficiency relative to RCB				110%
12	SY Monument	Syngenta, 2015	138.9	62.6	34.5	12.8
8	Northern	Montana, 2015	130.8	61.9	37.5	13.0
20	+ MT1564	Yellowstone*2/PI640431	127.9	63.7	36.6	13.4
24	+ LCS Jet	Limagrain Cereal Seeds, 2015	126.4	59.3	34.1	12.8
10	MT1265	Yellowstone*4/KS96WGRC40 (Lr41,	124.9	60.0	41.5	13.4
21	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	123.4	63.3	36.9	13.8
6	Keldin	Westbred, 2011	123.0	61.9	37.8	13.6
11	SY Wolf	Syngenta (AgriPro), 2010	123.0	61.8	36.4	13.3
22	+ MT1642	Yellowstone/Madsen//Yellowstone	122.7	57.6	38.7	13.3
3	Warhorse	Montana, 2013	120.4	61.4	37.9	14.6
17	MTS1588	MT0598/98X366E29-1	119.9	63.3	35.3	12.9
18	+ MT1547	Yellowstone/MT0684	119.6	62.9	35.7	13.6
13	FourOsix	Montana, 2018 (MT1465)	119.3	62.8	37.0	13.5
7	SY Clearstone 2CL	Montana/Syngenta, 2012	119.2	60.4	41.1	13.1
1	Yellowstone	Montana 2005	118.9	61.1	40.6	13.4
9	Loma	Montana, 2016	118.6	60.4	37.7	12.5
15	Ray	Montana, 2018 (MTF1432)	118.1	58.0	45.1	12.9
25	+ WB4483	WestBred, 2016	117.5	62.2	37.7	13.3
4	Brawl CLP	Colorado Research Foundation, 201	115.4	64.4	34.9	14.6
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	114.2	60.5	37.0	13.9
19	+ MT1563	Yellowstone*2/PI640431	113.2	60.9	41.1	13.3
14	MTW1491	MT08189//MT08187/(MTW08166, W	113.2	61.6	41.1	13.0
5	Decade	Montana/North Dakota, 2010	109.5	61.8	39.4	13.9
2	Judee	Montana, 2011	105.4	63.0	37.8	13.5
16	MTF1435	MT08186//Yellowstone(L)*2/98X168E	95.9	60.9	46.2	13.6
	Average		119.2	61.5	38.4	13.4
	LSD (0.05)		13.5	1.5	2.5	0.9
	C.V. (%)		6.9	1.5	4.0	3.7
	P-value (Varieties)					

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 46. 2018 Off-Station Winter Wheat Test (Exp. 3884): Fly Creek (Hardin Area, SARC)

Entry	Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Plant height in	Protein %
+ = new for 2018			RCB	LAT	LAT	LAT
lattice efficiency relative to RCB				107%	119%	128%
5	Decade	Montana/North Dakota, 2010	113.9	62.8	39.3	12.2
6	Keldin	Westbred, 2011	109.6	58.3	35.8	12.3
2	Judee	Montana, 2011	107.9	62.8	40.9	13.0
9	Loma	Montana, 2016	106.7	62.6	39.5	12.4
4	Brawl CLP	Colorado Research Foundation, 2011	105.4	62.4	39.0	12.9
18	+ MT1547	Yellowstone/MT0684	104.8	60.8	40.2	12.5
7	SY Clearstone 2CL	Montana/Syngenta, 2012	104.0	60.3	38.9	12.1
21	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	103.8	61.2	37.9	12.1
22	+ MT1642	Yellowstone/Madsen//Yellowstone	103.7	62.5	36.7	13.1
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	102.5	61.5	40.0	13.5
3	Warhorse	Montana, 2013	102.3	63.3	39.1	12.2
12	SY Monument	Syngenta, 2015	101.2	57.3	39.4	12.3
8	Northern	Montana, 2015	101.0	59.5	43.9	12.3
11	SY Wolf	Syngenta (AgriPro), 2010	98.3	62.4	38.2	12.5
16	MTF1435	MT08186//Yellowstone(L)*2/98X168E	98.1	59.2	40.8	12.7
1	Yellowstone	Montana 2005	97.1	64.5	35.1	12.8
17	MTS1588	MT0598/98X366E29-1	96.0	62.6	41.8	11.8
13	FourOsix	Montana, 2018 (MT1465)	95.8	63.3	36.5	12.2
25	+ WB4483	WestBred, 2016	95.8	58.6	41.1	12.1
20	+ MT1564	Yellowstone*2/PI640431	95.6	60.6	42.6	12.0
10	MT1265	Yellowstone*4/KS96WGRC40 (Lr41,	95.5	60.4	41.6	12.0
15	Ray	Montana, 2018 (MTF1432)	95.5	62.2	36.4	12.4
19	+ MT1563	Yellowstone*2/PI640431	94.5	55.6	45.7	12.6
24	+ LCS Jet	Limagrain Cereal Seeds, 2015	90.4	60.6	38.7	12.9
14	MTW1491	MT08189//MT08187/(MTW08166, W	73.1	57.7	47.5	13.8
Average			99.7	60.9	39.9	12.5
LSD (0.05)			6.7	2.3	1.7	0.7
C.V. (%)			10.9	2.2	2.4	3.0
P-value (Varieties)						

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 47. 2018 Off-Station Winter Wheat Test (Exp. 3885): Molt (SARC)

Entry	Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Plant height in	Protein %
	+ = new for 2018		RCB	RCB	LAT	RCB
		lattice efficiency relative to RCB			106%	
24	+ LCS Jet	Limagrain Cereal Seeds, 2015	72.9	59.2	30.1	11.5
5	Decade	Montana/North Dakota, 2010	70.5	62.1	32.5	12.1
8	Northern	Montana, 2015	69.1	62.6	30.6	11.2
6	Keldin	Westbred, 2011	63.4	61.4	31.9	11.7
10	MT1265	Yellowstone*4/KS96WGRC40 (Lr41,	62.3	58.9	34.7	11.4
3	Warhorse	Montana, 2013	60.8	61.7	28.5	11.1
12	SY Monument	Syngenta, 2015	59.7	61.0	28.4	10.1
14	MTW1491	MT08189//MT08187/(MTW08166, W	57.6	61.3	32.3	11.3
15	Ray	Montana, 2018 (MTF1432)	56.9	60.5	34.6	10.7
25	+ WB4483	WestBred, 2016	56.8	59.6	30.6	12.1
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	55.2	60.5	30.4	11.1
9	Loma	Montana, 2016	54.8	60.4	28.7	10.9
18	+ MT1547	Yellowstone/MT0684	53.8	60.4	29.3	11.5
13	FourOsix	Montana, 2018 (MT1465)	53.4	60.5	31.1	11.3
1	Yellowstone	Montana 2005	53.2	61.7	30.0	10.7
7	SY Clearstone 2CL	Montana/Syngenta, 2012	52.6	61.0	31.7	10.9
11	SY Wolf	Syngenta (AgriPro), 2010	51.8	62.4	29.2	10.3
21	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	51.2	63.2	28.5	11.2
2	Judee	Montana, 2011	51.1	61.9	29.1	10.3
22	+ MT1642	Yellowstone/Madsen//Yellowstone	51.0	59.8	30.8	11.2
19	+ MT1563	Yellowstone*2/PI640431	49.8	60.0	31.0	11.2
20	+ MT1564	Yellowstone*2/PI640431	48.1	61.6	29.8	11.3
17	MTS1588	MT0598/98X366E29-1	47.3	62.3	28.5	11.2
4	Brawl CLP	Colorado Research Foundation, 201	43.7	63.5	27.1	11.6
16	MTF1435	MT08186//Yellowstone(L)*2/98X168E	41.1	60.3	36.9	11.1
	Average		55.5	61.1	30.7	11.2
	LSD (0.05)		9.0	1.8	2.8	1.1
	C.V. (%)		9.8	1.8	5.2	6.1
	P-value (Varieties)					

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 48. 2018 Off-Station Winter Wheat Test (Exp. 3886): Fort Smith (SARC)

Entry	Cultivar/Line	Origin/Pedigree	Yield bu/ac	Test weight lb/bu	Plant height in	Protein %
+ = new for 2018			LAT	LAT	RCB	RCB
lattice efficiency relative to RCB			112%	119%		
6	Keldin	Westbred, 2011	96.7	60.8	36.7	12.9
24	+ LCS Jet	Limagrain Cereal Seeds, 2015	93.6	58.0	32.3	12.5
17	MTS1588	MT0598/98X366E29-1	93.6	61.5	33.5	12.8
22	+ MT1642	Yellowstone/Madsen//Yellowstone	93.0	54.8	36.9	12.7
9	Loma	Montana, 2016	92.8	58.4	35.2	12.6
21	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	92.3	61.5	35.3	13.1
7	SY Clearstone 2CL	Montana/Syngenta, 2012	92.3	56.4	41.5	12.7
19	+ MT1563	Yellowstone*2/PI640431	90.3	57.4	39.8	12.6
10	MT1265	Yellowstone*4/KS96WGRC40 (Lr41,	90.1	57.1	40.8	13.1
25	+ WB4483	WestBred, 2016	89.7	60.2	36.2	13.1
8	Northern	Montana, 2015	89.4	58.7	38.1	13.2
15	Ray	Montana, 2018 (MTF1432)	88.2	56.6	42.1	12.8
1	Yellowstone	Montana 2005	87.0	59.4	39.2	12.8
5	Decade	Montana/North Dakota, 2010	83.7	59.9	39.2	14.3
3	Warhorse	Montana, 2013	82.5	58.9	36.0	14.3
14	MTW1491	MT08189//MT08187/(MTW08166, W	82.3	59.7	38.3	12.2
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	80.0	58.2	37.0	13.4
2	Judee	Montana, 2011	78.7	61.4	34.5	13.9
18	+ MT1547	Yellowstone/MT0684	78.6	59.9	35.0	13.0
13	FourOsix	Montana, 2018 (MT1465)	77.3	59.6	32.9	13.0
11	SY Wolf	Syngenta (AgriPro), 2010	70.1	59.6	35.0	13.0
20	+ MT1564	Yellowstone*2/PI640431	69.8	60.8	34.9	13.2
16	MTF1435	MT08186//Yellowstone(L)*2/98X168E	68.7	56.9	47.8	13.9
12	SY Monument	Syngenta, 2015	65.6	61.0	34.9	12.8
4	Brawl CLP	Colorado Research Foundation, 2011	55.8	61.6	34.6	15.4
Average			83.3	59.1	37.1	13.2
LSD (0.05)			12.1	2.1	2.6	0.5
C.V. (%)			8.3	2.0	4.2	2.4
P-value (Varieties)						

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 49. 20188 Off-Station Winter Wheat Test (Exp. 38): Multi-Location Yield (bu/a)

Cultivar/Line	Devon/						Fly Cr/										14 Loc. Average
	Turner NARC LAT	Loma NARC LAT	Knees WTARC LAT	Cut Bank LAT	Shelby WTARC LAT	Choteau WTARC LAT	Denton CARC not	Gerald- ine RCB	Belt CARC LAT	High- wood LAT	Huntley SARC RCB	Rapelje SARC RCB	Hysham SARC hailed	Hardin SARC RCB	Molt SARC RCB	Ft Smith SARC LAT	
+ = new for 2018	159%	158%	121%	116%	282%	106%	used		153%	126%			out			112%	
Keldin	33.4	62.7	60.2	85.2	39.9	70.8		85.7	72.7	32.6	127.0	123.0	113.9	63.4	96.7	76.2	
+ LCS Jet	32.6	51.4	54.2	79.3	43.1	71.7		82.9	69.6	39.4	135.3	126.4	109.6	72.9	93.6	75.9	
Northern	38.3	63.3	59.1	75.3	46.7	72.2		78.7	70.3	33.8	104.9	130.8	104.8	69.1	89.4	74.1	
Loma	35.4	57.7	67.7	87.0	45.1	74.1		80.0	80.3	36.6	87.8	118.6	104.0	54.8	92.8	73.0	
+ MT1642	38.6	55.0	62.8	87.2	50.2	65.5		80.5	77.7	34.6	99.9	122.7	101.2	51.0	93.0	72.9	
MTS1588	34.5	66.5	62.9	82.5	49.2	81.9		76.6	75.2	36.7	92.5	119.9	95.5	47.3	93.6	72.5	
SY Monument	27.2	63.3	56.3	63.6	33.9	74.3		78.4	79.1	46.4	115.5	138.9	103.8	59.7	65.6	71.9	
Decade	35.7	61.5	52.2	69.3	37.8	73.8		79.7	73.5	45.2	105.5	109.5	107.9	70.5	83.7	71.8	
SY Clearstone 2Cl	33.1	59.9	55.9	83.4	40.9	67.5		81.1	73.5	45.9	100.1	119.2	95.6	52.6	92.3	71.5	
+ MTCS1601	35.5	54.5	64.3	75.0	41.1	76.0		82.5	72.4	31.4	104.5	123.4	95.8	51.2	92.3	71.4	
Yellowstone	36.1	58.9	56.5	87.2	44.2	70.6		74.3	68.7	35.2	96.0	118.9	95.8	53.2	87.0	70.2	
MT1265	36.9	59.5	54.7	74.5	39.9	62.7		82.1	66.8	34.5	92.0	124.9	101.0	62.3	90.1	70.1	
Ray	34.9	59.2	62.3	78.6	37.6	62.6		76.2	65.6	31.1	107.2	118.1	94.5	56.9	88.2	69.5	
Warhorse	31.5	43.5	60.1	68.8	41.0	66.3		74.3	73.7	43.3	103.8	120.4	102.5	60.8	82.5	69.5	
Judee	31.6	56.8	62.3	77.3	41.7	70.6		78.9	70.2	50.8	86.3	105.4	105.4	51.1	78.7	69.1	
+ MT1563	35.0	60.6	57.3	77.7	43.8	65.8		81.5	73.5	39.3	84.3	113.2	95.5	49.8	90.3	69.1	
MTW1491	37.6	59.2	56.8	75.8	44.6	68.4		75.5	69.7	36.0	93.4	113.2	96.0	57.6	82.3	69.0	
+ WB4483	35.0	53.9	60.2	83.9	41.6	62.6		75.9	74.2	37.0	86.5	117.5	90.4	56.8	89.7	68.9	
SY Wolf	30.5	58.2	56.5	70.1	36.9	65.2		78.3	68.4	29.8	114.9	123.0	103.7	51.8	70.1	68.4	
FourOsix	34.3	59.6	54.0	65.8	41.3	71.9		70.0	71.4	38.9	83.0	119.3	102.3	53.4	77.3	67.3	
+ MT1547	29.9	50.1	50.7	65.4	39.8	74.1		68.3	69.2	36.0	94.5	119.6	106.7	53.8	78.6	66.9	
+ MT1564	28.1	54.6	61.7	62.4	38.8	73.4		75.1	70.5	26.9	101.6	127.9	98.3	48.1	69.8	66.9	
+ MTV1681	30.2	57.5	50.7	67.8	39.2	59.2		73.2	71.9	39.9	88.3	114.2	98.1	55.2	80.0	66.1	
Brawl CLP	22.0	61.4	60.5	62.3	32.5	80.3		75.5	57.4	21.5	117.6	115.4	97.1	43.7	55.8	64.5	
MTF1435	32.2	55.4	53.0	63.2	36.3	58.2		56.0	57.1	26.1	76.0	95.9	73.1	41.1	68.7	56.6	
Average	33.2	57.8	58.1	74.7	41.1	69.6		76.9	70.9	36.4	99.9	119.2	99.7	55.5	83.3	69.7	
LSD (0.05)	3.3	4.0	7.9	15.9	5.0	9.3		6.6	9.0	8.8	16.7	13.5	6.7	9.0	12.1	5.0	
C.V. (%)	5.5	3.8	7.5	11.9	6.6	7.7		5.2	6.9	13.3	10.2	6.9	10.9	9.8	8.3	9.6	

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 50. 2018 Off-Station Winter Wheat Test (Exp. 38): Multi-Location Test Weight (lb/bu)

Cultivar/Line + = new for 2018	Devon/						Fly Cr/										14 Loc. Average
	Turner NARC LAT	Loma NARC LAT	Knees WTARC LAT	Cut Bank LAT	Shelby WTARC LAT	Choteau WTARC LAT	Denton CARC not	Gerald- ine LAT	Belt CARC LAT	High- wood LAT	Huntley SARC RCB	Rapelje SARC RCB	Hysham SARC hailed	Hardin SARC LAT	Molt SARC RCB	Ft Smith SARC LAT	
	122%	217%	125%	408%	237%	137%	used	192%	136%	210%		out	107%		119%		
Brawl CLP	62.7	62.1	60.1	63.4	61.5	62.6		65.1	62.1	63.7	61.7	64.4	64.5	63.5	61.6	62.8	
+ MTCS1601	62.1	60.8	58.5	62.1	59.8	60.6		64.2	62.5	63.0	60.7	63.3	63.3	63.2	61.5	61.8	
SY Wolf	62.1	61.5	58.9	61.9	59.6	60.8		64.2	62.0	63.7	61.5	61.8	62.5	62.4	59.6	61.6	
Judee	62.6	60.2	56.8	62.0	60.1	58.7		64.7	62.2	64.4	60.6	63.0	62.4	61.9	61.4	61.5	
Keldin	61.9	60.2	57.7	62.3	59.5	60.5		64.2	60.8	63.1	61.8	61.9	62.8	61.4	60.8	61.4	
MTS1588	62.0	61.0	57.0	61.7	60.2	59.2		64.2	62.2	63.0	59.5	63.3	62.2	62.3	61.5	61.4	
+ MT1564	61.7	61.3	57.0	61.0	58.8	60.4		63.9	62.3	63.8	58.8	63.7	62.4	61.6	60.8	61.3	
Decade	61.8	60.0	57.4	61.8	58.9	59.4		64.0	61.9	63.5	59.7	61.8	62.8	62.1	59.9	61.1	
MTW1491	62.0	60.1	56.2	62.3	58.3	58.8		63.2	61.0	63.3	58.9	61.6	62.6	61.3	59.7	60.7	
Northern	61.8	60.1	56.3	61.8	58.9	59.4		63.4	61.1	63.5	59.5	61.9	60.8	62.6	58.7	60.7	
FourOsix	61.7	59.6	55.5	61.8	58.4	57.5		63.6	61.7	63.5	59.0	62.8	63.3	60.5	59.6	60.6	
SY Monument	61.2	60.3	55.8	61.6	57.0	58.8		63.3	60.5	63.6	60.4	62.6	61.2	61.0	61.0	60.6	
Warhorse	60.4	59.5	57.4	60.6	59.4	58.2		63.6	61.4	63.1	60.7	61.4	61.5	61.7	58.9	60.6	
+ MT1547	61.7	58.8	55.9	60.9	58.3	57.7		63.3	61.6	63.3	59.3	62.9	62.6	60.4	59.9	60.5	
+ WB4483	61.7	59.3	56.6	62.0	58.4	57.4		63.5	62.1	63.9	56.3	62.2	60.6	59.6	60.2	60.3	
Loma	61.8	58.5	58.2	61.3	58.5	57.3		63.0	61.6	63.0	57.0	60.4	60.3	60.4	58.4	60.0	
+ MT1563	61.8	59.0	56.9	61.0	58.5	57.9		63.4	61.2	63.5	57.2	60.9	60.4	60.0	57.4	59.9	
+ MTV1681	61.6	59.8	58.0	60.8	57.4	57.5		62.9	60.7	63.2	58.1	60.5	59.2	60.5	58.2	59.9	
Yellowstone	61.4	58.9	55.1	60.6	58.0	57.6		62.8	60.9	63.1	58.5	61.1	58.6	61.7	59.4	59.8	
MT1265	61.8	59.1	55.0	61.4	57.7	57.2		62.9	60.1	63.4	58.6	60.0	59.5	58.9	57.1	59.5	
SY Clearstone 2Cl	61.1	58.5	55.1	59.7	57.7	57.4		62.8	60.8	63.0	58.3	60.4	60.6	61.0	56.4	59.5	
MTF1435	60.5	58.0	55.3	60.5	57.7	57.3		62.4	60.6	62.7	60.4	60.9	57.7	60.3	56.9	59.4	
+ MT1642	60.6	58.6	55.4	61.2	57.8	56.7		62.8	60.7	63.1	56.6	57.6	57.3	59.8	54.8	58.8	
Ray	60.1	57.6	54.3	59.2	56.0	56.8		61.8	59.5	62.5	58.6	58.0	55.6	60.5	56.6	58.4	
+ LCS Jet	58.8	56.7	53.6	58.6	55.4	55.7		60.8	58.2	61.3	58.3	59.3	58.3	59.2	58.0	58.0	
Average	61.5	59.6	56.6	61.3	58.5	58.5		63.3	61.2	63.2	59.2	61.5	60.9	61.1	59.1	60.4	
LSD (0.05)	0.3	1.0	1.8	1.1	0.8	1.3		0.5	0.8	0.5	1.4	1.5	2.3	1.8	2.1	0.6	
C.V. (%)	0.3	0.9	1.8	0.9	0.8	1.3		0.4	0.7	0.4	1.4	1.5	2.2	1.8	2.0	1.4	

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 51. 2018 Off-Station Winter Wheat Test (Exp. 38): Multi-Location Plant height (in)

Cultivar/Line + = new for 2018	Devon/						Fly Cr/										14 Loc. Average
	Turner NARC RCB	Loma NARC LAT	Knees WTARC RCB	Cut Bank RCB	Shelby WTARC LAT	Choteau WTARC RCB	Denton CARC not	Gerald- ine RCB	Belt CARC RCB	High- wood LAT	Huntley SARC RCB	Rapelje SARC RCB	Hysham SARC hailed	Hardin SARC LAT	Molt SARC LAT	Ft Smith SARC RCB	
		121%			120%		used		105%		out	119%	106%				
+ LCS Jet	17.2	21.4	20.0	22.7	19.5	25.5		27.3	27.7	22.2	33.2	34.1		35.8	30.1	32.3	26.4
Brawl CLP	16.8	25.9	24.7	20.7	18.5	25.5		30.3	28.3	21.1	32.5	34.9		35.1	27.1	34.6	26.9
SY Monument	18.7	26.6	23.3	18.7	20.7	26.5		29.0	29.8	24.4	31.1	34.5		37.9	28.4	34.9	27.5
MTS1588	20.1	25.4	23.8	23.0	19.2	27.2		28.7	29.8	22.2	33.3	35.3		36.4	28.5	33.5	27.6
Loma	17.1	22.2	23.3	23.7	20.4	26.1		31.0	29.9	22.2	32.3	37.7		38.9	28.7	35.2	27.8
+ MT1564	17.9	27.7	25.0	21.3	19.5	26.9		29.3	29.8	21.2	34.4	36.6		38.2	29.8	34.9	28.0
SY Wolf	21.5	28.3	24.2	21.7	20.0	25.8		31.0	27.1	22.7	34.0	36.4		36.7	29.2	35.0	28.1
+ WB4483	19.7	24.4	23.0	25.3	20.8	26.4		30.3	30.1	22.7	32.4	37.7		38.7	30.6	36.2	28.5
+ MT1547	20.0	24.0	23.3	23.0	24.1	28.0		30.7	32.2	22.8	33.3	35.7		39.5	29.3	35.0	28.6
FourOsix	22.3	24.0	25.0	23.7	22.3	25.8		30.3	30.7	24.3	32.8	37.0		39.1	31.1	32.9	28.7
+ MTCS1601	22.7	27.1	26.8	22.7	20.9	25.8		30.0	28.8	23.2	37.7	36.9		36.5	28.5	35.3	28.8
Keldin	21.4	27.2	23.8	23.0	20.1	27.3		30.0	30.4	24.5	34.5	37.8		39.3	31.9	36.7	29.1
Northern	20.5	25.8	27.2	22.7	20.9	26.6		31.7	31.9	22.5	35.7	37.5		40.2	30.6	38.1	29.4
Warhorse	20.2	26.3	23.3	23.0	23.6	26.1		31.7	32.8	25.6	36.4	37.9		40.0	28.5	36.0	29.4
+ MTV1681	21.4	26.2	24.3	23.3	20.2	28.3		32.7	31.7	25.4	34.8	37.0		40.8	30.4	37.0	29.5
Judee	21.1	28.6	25.3	27.0	23.0	27.5		32.3	32.7	25.3	37.0	37.8		39.0	29.1	34.5	30.0
Decade	20.8	25.7	23.0	22.7	21.3	29.9		31.7	32.7	27.2	34.9	39.4		40.9	32.5	39.2	30.1
MTW1491	21.7	26.5	27.2	24.7	22.6	28.4		32.3	32.5	22.8	35.3	41.1		41.8	32.3	38.3	30.5
+ MT1642	23.4	27.5	27.5	26.7	23.3	29.2		32.0	31.9	24.6	36.2	38.7		39.4	30.8	36.9	30.6
Yellowstone	21.2	26.2	25.7	29.0	23.6	27.9		33.7	32.5	24.8	40.0	40.6		41.1	30.0	39.2	31.1
+ MT1563	22.0	29.3	28.0	26.7	23.3	28.5		32.7	33.5	25.1	35.3	41.1		41.6	31.0	39.8	31.3
MT1265	24.4	26.6	27.3	27.0	23.8	28.8		33.0	33.0	23.9	36.0	41.5		43.9	34.7	40.8	31.8
SY Clearstone 2C	22.8	28.0	28.5	28.0	23.0	28.1		37.0	34.9	27.2	40.9	41.1		42.6	31.7	41.5	32.5
Ray	25.7	29.8	31.3	31.3	29.9	31.8		37.0	35.3	28.8	44.1	45.1		45.7	34.6	42.1	35.2
MTF1435	23.2	32.6	33.7	31.7	28.5	35.4		41.7	42.4	27.6	43.6	46.2		47.5	36.9	47.8	37.1
Average	21.0	26.5	25.5	24.5	22.1	27.7		31.9	31.7	24.2	35.7	38.4		39.9	30.7	37.1	29.8
LSD (0.05)	2.2	2.4	3.0	4.5	2.6	2.9		3.0	3.0	2.2	2.9	2.5		1.7	2.8	2.6	1.0
C.V. (%)	6.3	5.0	7.2	11.3	6.6	4.7		5.8	5.5	5.2	4.9	4.0		2.4	5.2	4.2	4.7

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 52. 2018 Off-Station Winter Wheat Test (Exp. 38): Multi-Location Protein (%)

Cultivar/Line + = new for 2018	Devon/						Fly Cr/						14 Loc. Average			
	Turner NARC LAT	Loma NARC LAT	Knees WTARC LAT	Cut Bank LAT	Shelby WTARC LAT	Choteau WTARC LAT	Denton CARC not	Gerald- ine LAT	Belt CARC LAT	High- wood LAT	Huntley SARC RCB	Rapelje SARC LAT		Hysham SARC hailed	Hardin SARC LAT	Molt SARC RCB
	126%	172%	110%	148%	261%	108%	used	209%	244%	242%		110%	out	128%		
Brawl CLP	16.1	14.9	14.1	14.2	13.4	14.3		13.5	13.6	15.4	13.5	14.6		12.8	11.6	15.4
+ MT1563	15.4	13.8	13.2	13.5	12.3	14.7		11.4	11.7	13.3	14.1	13.3		12.0	11.2	12.6
Warhorse	15.7	14.6	14.3	13.8	13.3	14.9		12.8	12.9	14.1	14.4	14.6		13.5	11.1	14.3
MTW1491	15.2	13.8	13.5	12.4	12.5	14.5		11.4	11.8	13.3	13.5	13.0		11.8	11.3	12.2
+ WB4483	15.4	14.8	14.4	13.5	13.1	16.5		12.0	12.3	14.8	15.2	13.3		12.9	12.1	13.1
FourOsix	15.5	13.9	13.6	13.0	12.3	14.8		11.9	12.0	13.6	14.2	13.5		12.2	11.3	13.0
+ LCS Jet	14.6	13.9	13.4	12.7	12.0	14.7		12.0	11.8	13.4	13.5	12.8		12.3	11.5	12.5
MT1265	15.7	14.2	13.7	13.1	12.9	15.1		11.7	11.7	14.0	13.9	13.4		12.3	11.4	13.1
Northern	15.8	14.3	13.9	12.9	12.6	14.6		12.3	12.8	14.8	13.2	13.0		12.5	11.2	13.2
Judee	16.6	13.9	14.3	11.6	12.9	15.8		12.3	12.7	13.8	13.5	13.5		12.9	10.3	13.9
Loma	16.1	14.5	13.7	12.8	12.8	15.3		11.7	11.8	14.6	13.8	12.5		12.1	10.9	12.6
+ MTCS1601	15.8	14.0	13.5	12.9	12.7	14.5		12.2	12.5	14.6	13.9	13.8		12.2	11.2	13.1
MTS1588	15.3	13.6	13.5	12.4	12.3	15.3		11.9	12.3	14.2	14.4	12.9		12.4	11.2	12.8
Decade	16.3	14.6	14.6	12.9	12.7	15.2		12.8	12.5	14.1	13.8	13.9		13.0	12.1	14.3
+ MT1564	16.1	13.7	13.2	12.2	13.2	14.4		11.7	12.1	14.5	13.6	13.4		12.5	11.3	13.2
MTF1435	14.6	14.0	13.5	12.7	12.6	14.6		12.6	12.5	13.6	14.5	13.6		13.8	11.1	13.9
+ MTV1681	15.6	14.6	14.1	12.3	13.0	15.2		11.9	12.1	13.2	14.3	13.9		12.7	11.1	13.4
SY Wolf	15.8	14.2	13.9	13.2	12.8	15.2		12.3	12.8	14.8	13.8	13.3		13.1	10.3	13.0
Ray	15.1	14.6	13.3	12.8	12.6	14.4		12.0	11.8	13.9	13.7	12.9		12.6	10.7	12.8
SY Clearstone 2Cl	16.0	14.5	13.4	13.0	12.4	14.8		11.8	11.5	12.9	13.8	13.1		12.0	10.9	12.7
SY Monument	14.8	12.8	12.8	12.5	12.6	14.0		11.7	11.8	12.8	13.3	12.8		12.1	10.1	12.8
Keldin	15.2	13.9	14.3	12.7	11.9	15.2		12.1	13.3	14.9	13.0	13.6		12.2	11.7	12.9
+ MT1547	15.4	14.2	13.6	12.6	12.6	14.5		11.9	11.8	13.7	13.9	13.6		12.4	11.5	13.0
+ MT1642	15.6	15.0	13.8	12.1	12.6	15.4		11.8	11.9	14.5	14.8	13.3		12.3	11.2	12.7
Yellowstone	15.3	14.1	13.7	12.2	12.5	14.8		11.7	11.7	14.3	13.3	13.4		12.1	10.7	12.8
Average	15.5	14.2	13.7	12.8	12.7	14.9		12.1	12.2	14.0	13.9	13.4		12.5	11.2	13.2
LSD (0.05)	0.4	0.5	0.5	1.0	0.7	0.6		0.3	0.5	0.9	0.5	0.9		0.7	1.1	0.5
C.V. (%)	1.5	2.0	1.9	4.3	3.1	6.8		1.3	2.3	3.6	2.4	3.7		3.0	6.1	2.4

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 53. 2018 Off-Station Winter Wheat Test (Exp. 38): Multi-Location Sawfly Cutting (%)

Cultivar/Line	Origin/Pedigree	NARC	Western Triangle Ag Res.			4 Loc Average
		Loma	Knees	Shelby/ Devon	Choteau	
+ = new for 2018		LAT	LAT	RCB	RCB	
	lattice efficiency relative to RCB	140%	107%			
MTS1588	MT0598/98X366E29-1	<u>7</u>	<u>0</u>	<u>1</u>	<u>4</u>	<u>3</u>
Warhorse	Montana, 2013	17	2	1	12	8
Brawl CLP	Colorado Research Foundation, 2011	74	14	13	23	31
Loma	Montana, 2016	32	36	10	90	42
+ MTV1681	Yellowstone*2//WillowCreek/MT0612	42	32	22	83	45
+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	48	43	13	78	46
SY Wolf	Syngenta (AgriPro), 2010	59	27	21	76	46
+ WB4483	WestBred, 2016	62	37	13	87	50
Decade	Montana/North Dakota, 2010	77	45	15	82	55
+ MT1564	Yellowstone*2//PI640431	65	50	15	96	57
Judee	Montana, 2011	65	67	12	87	58
Keldin	Westbred, 2011	81	37	27	88	58
SY Monument	Syngenta, 2015	66	46	25	98	59
+ MT1642	Yellowstone/Madsen//Yellowstone	77	58	27	83	61
+ MT1563	Yellowstone*2//PI640431	58	61	39	93	63
MTF1435	MT08186//Yellowstone(L)*2/98X168E	63	76	30	93	66
FourOsix	Montana, 2018 (MT1465)	75	66	30	100	68
MT1265	Yellowstone*4//KS96WGRC40 (Lr41,	76	64	37	97	69
Yellowstone	Montana 2005	85	74	23	98	70
Ray	Montana, 2018 (MTF1432)	67	82	34	99	71
+ LCS Jet	Limagrain Cereal Seeds, 2015	90	78	22	96	71
Northern	Montana, 2015	76	84	32	94	71
+ MT1547	Yellowstone/MT0684	79	68	40	99	72
MTW1491	MT08189//MT08187/(MTW08166, W	80	78	40	97	74
SY Clearstone 2CL	Montana/Syngenta, 2012	79	80	43	100	76
Average		64.0	52.1	23.4	82.1	55.4
LSD (0.05)		30.7	23.8	12.8	14.5	17.8
C.V. (%)		26.2	26.0	32.7	28.4	22.8

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 54. 2018 Off-Station Winter Wheat Test (Exp. 38): Falling Number

Entry	Cultivar/Line	Origin/Pedigree	Target ≥ 300 ^{1/}		
			Turner NARC LAT	Loma NARC LAT	2 Loc Average
	+ = new for 2018				
		lattice efficiency relative to RCB	196%	122%	
23	+ MTV1681	Yellowstone*2//WillowCreek/MT0612	375	379	377
10	MT1265	Yellowstone*4/KS96WGRC40 (Lr41,	374	380	377
14	MTW1491	MT08189//MT08187/(MTW08166, W	372	378	375
8	Northern	Montana, 2015	369	373	371
7	SY Clearstone 2CL	Montana/Syngenta, 2012	361	382	371
3	Warhorse	Montana, 2013	365	376	370
22	+ MT1642	Yellowstone/Madsen//Yellowstone	355	381	368
1	Yellowstone	Montana 2005	360	373	366
20	+ MT1564	Yellowstone*2/PI640431	368	364	366
19	+ MT1563	Yellowstone*2/PI640431	364	364	364
15	Ray	Montana, 2018 (MTF1432)	357	370	364
13	FourOsix	Montana, 2018 (MT1465)	353	362	358
21	+ MTCS1601	MTS0531/7/MTS0532/6/96X17E69/3	352	362	357
5	Decade	Montana/North Dakota, 2010	350	359	354
6	Keldin	Westbred, 2011	334	367	351
18	+ MT1547	Yellowstone/MT0684	354	346	350
25	+ WB4483	WestBred, 2016	335	361	348
4	Brawl CLP	Colorado Research Foundation, 2011	345	344	344
16	MTF1435	MT08186//Yellowstone(L)*2/98X168B	322	367	344
12	SY Monument	Syngenta, 2015	340	347	344
17	MTS1588	MT0598/98X366E29-1	336	349	342
9	Loma	Montana, 2016	337	344	340
2	Judee	Montana, 2011	322	350	336
24	+ LCS Jet	Limagrain Cereal Seeds, 2015	318	350	334
11	SY Wolf	Syngenta (AgriPro), 2010	294	343	319
	Average		348.4	362.7	356
	LSD (0.05)		14.2	16.2	21
	C.V. (%)		2.2	2.5	2.9
	P-value (Varieties)		<.0001	<.0001	0.0003

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 55. 2015-2018 Off-Station Winter Wheat Test (Exp. 3851): Turner (NARC) Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)				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
Brawl CLP	22.0	19.2			62.7	60.9			16.1	14.6		
Decade	35.7	28.4	37.4	38.5	61.8	59.3	58.9	59.0	16.3	15.4	14.1	14.2
FourOsix	34.3	26.7			61.7	59.2			15.5	14.9		
Judee	31.6	24.9	40.0	39.2	62.6	60.2	60.2	60.4	16.6	15.8	14.4	14.2
Keldin	33.4	27.1	36.9		61.9	59.7	59.6		15.2	14.3	13.1	
+ LCS Jet	32.6				58.8				14.6			
Loma	35.4	28.4	39.3	39.1	61.8	59.5	59.7	59.6	16.1	15.4	14.1	14.0
MT1265	36.9	28.8	42.3	42.2	61.8	59.0	59.2	59.3	15.7	14.8	13.5	13.4
+ MT1547	29.9				61.7				15.4			
+ MT1563	35.0				61.8				15.4			
+ MT1564	28.1				61.7				16.1			
+ MT1642	38.6				60.6				15.6			
+ MTCS1601	35.5				62.1				15.8			
MTF1435	32.2	24.8			60.5	58.3			14.6	13.9		
MTS1588	34.5	28.7			62.0	59.8			15.3	14.7		
+ MTV1681	30.2				61.6				15.6			
MTW1491	37.6	30.4			62.0	59.6			15.2	14.2		
Northern	38.3	29.8	42.1	41.3	61.8	59.6	59.8	59.6	15.8	15.1	14.0	13.9
Ray	34.9	26.6			60.1	57.5			15.1	14.4		
SY Clearstone 2CL	33.1	26.1	37.5	38.0	61.1	58.9	59.0	59.1	16.0	15.1	13.8	13.7
SY Monument	27.2	23.0			61.2	59.1			14.8	13.5		
SY Wolf	30.5	24.1	37.0	37.6	62.1	60.1	59.7	59.6	15.8	14.9	13.6	13.6
Warhorse	31.5	24.2	37.0	36.8	60.4	57.6	58.3	58.5	15.7	15.0	14.0	14.1
+ WB4483	35.0				61.7				15.4			
Yellowstone	36.1	27.6	42.5	41.7	61.4	58.5	58.9	59.0	15.3	14.5	13.3	13.3
Average	33.2	26.4	39.2	39.4	61.5	59.2	59.3	59.3	15.5	14.7	13.8	13.8
LSD (0.05)	3.3	24.5	ns	ns	0.3	0.9	ns	0.9	0.4	0.7	0.4	0.4
C.V. (%)	5.5	8.0	9.1	7.9	0.3	0.7	1.1	1.0	1.5	2.4	1.8	2.1

+ = new for 2018

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 56. 2015-2018 Off-Station Winter Wheat Test (Exp. 3853): Loma (NARC) Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)				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
Brawl CLP	61.4	55.1			<u>62.1</u>	<u>61.9</u>			14.9	14.8		
Decade	61.5	51.0	45.9	46.1	60.0	60.0	57.9	57.5	14.6	15.0	15.7	15.4
FourOsix	59.6	51.5			59.6	60.2			13.9	14.5		
Judee	56.8	49.0	46.4	45.7	60.2	60.6	58.4	58.1	13.9	15.0	16.0	<u>15.9</u>
Keldin	62.7	50.7	50.3		60.2	60.2	59.0		13.9	14.5	15.2	
+ LCS Jet	51.4				56.7				13.9			
Loma	57.7	49.6	43.4	44.1	58.5	59.5	57.3	57.1	14.5	14.7	15.6	15.4
MT1265	59.5	51.2	50.1	<u>50.8</u>	59.1	59.6	58.1	58.0	14.2	14.9	15.4	15.1
+ MT1547	50.1				58.8				14.2			
+ MT1563	60.6				59.0				13.8			
+ MT1564	54.6				61.3				13.7			
+ MT1642	55.0				58.6				15.0			
+ MTCS1601	54.5				60.8				14.0			
MTF1435	55.4	48.1			58.0	59.1			14.0	14.5		
MTS1588	<u>66.5</u>	58.1			61.0	61.1			13.6	14.4		
+ MTV1681	57.5				59.8				14.6			
MTW1491	59.2	50.9			60.1	60.7			13.8	14.4		
Northern	63.3	53.6	49.2	50.7	60.1	60.2	57.5	57.5	14.3	15.0	16.0	15.8
Ray	59.2	50.3			57.6	58.0			14.6	14.9		
SY Clearstone 2CL	59.9	49.2	46.8	47.5	58.5	59.4	57.6	57.5	14.5	15.1	15.7	15.4
SY Monument	63.3	51.7			60.3	60.2			12.8	13.3		
SY Wolf	58.2	50.1	48.6	48.9	61.5	61.7	59.6	<u>59.5</u>	14.2	14.6	15.2	15.0
Warhorse	43.5	42.1	40.3	41.3	59.5	60.2	58.7	58.2	14.6	<u>15.3</u>	15.9	15.5
+ WB4483	53.9				59.3				14.8			
Yellowstone	58.9	50.7	48.6	48.1	58.9	59.4	57.7	57.5	14.1	14.7	15.5	15.1
Average	57.8	50.7	46.9	47.0	59.6	60.1	58.2	57.9	14.2	14.6	15.6	15.4
LSD (0.05)	4.0	ns	ns	5.3	1.0	1.1	ns	1.0	0.5	0.8	ns	0.6
C.V. (%)	3.8	6.6	9.2	7.8	0.9	0.9	1.5	1.2	2.0	2.5	2.6	2.5

+ = new for 2018

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 57. 2015-2018 Off-Station Winter Wheat Test (Exp. 3865): The Knees (WTARC) Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)				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
Brawl CLP	60.5	75.4			60.1	62.1			14.1	12.8		
Decade	52.2	61.9	69.1	69.2	57.4	59.4	58.9	59.0	14.6	13.6	13.2	12.5
FourOsix	54.0	65.1			55.5	58.2			13.6	12.9		
Judee	62.3	67.6	84.1	78.0	56.8	59.4	60.0	60.0	14.3	13.4	13.2	12.8
Keldin	60.2	75.1	90.7		57.7	59.8	59.7		14.3	13.1	11.6	
+ LCS Jet	54.2				53.6				13.4			
Loma	67.7	78.0	79.7	78.1	58.2	59.6	58.3	58.4	13.7	12.8	13.1	12.7
MT1265	54.7	68.8	76.6	73.1	55.0	57.3	57.5	57.7	13.7	13.0	12.4	12.0
+ MT1547	50.7				55.9				13.6			
+ MT1563	57.3				56.9				13.2			
+ MT1564	61.7				57.0				13.2			
+ MT1642	62.8				55.4				13.8			
+ MTCS1601	64.3				58.5				13.5			
MTF1435	53.0	63.9			55.3	57.5			13.5	13.0		
MTS1588	62.9	72.5			57.0	59.5			13.5	13.0		
+ MTV1681	50.7				58.0				14.1			
MTW1491	56.8	71.2			56.2	58.3			13.5	12.7		
Northern	59.1	69.5	76.4	74.8	56.3	58.4	57.8	58.2	13.9	13.2	12.9	12.5
Ray	62.3	71.3			54.3	56.6			13.3	12.7		
SY Clearstone 2CL	55.9	68.1	83.5	80.0	55.1	57.4	57.8	57.8	13.4	12.7	12.5	12.0
SY Monument	56.3	73.2			55.8	57.8			12.8	12.1		
SY Wolf	56.5	70.9	82.0	79.4	58.9	61.1	60.5	60.6	13.9	13.1	12.7	12.0
Warhorse	60.1	68.6	72.9	71.8	57.4	59.2	58.9	59.0	14.3	13.5	13.4	12.8
+ WB4483	60.2				56.6				14.4			
Yellowstone	56.5	70.7	80.3	77.4	55.1	57.9	57.6	57.8	13.7	12.8	12.5	12.1
Average	58.1	70.1	79.5	75.7	56.6	58.8	58.7	58.7	13.7	12.9	12.8	12.4
LSD (0.05)	7.9	ns	ns	ns	1.8	1.0	1.7	1.3	0.5	0.6	ns	0.6
C.V. (%)	7.5	6.1	11.6	10.7	1.8	0.8	1.7	1.5	1.9	2.3	6.2	3.5

+ = new for 2018

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 58. 2015-2018 Off-Station Winter Wheat Test (Exp. 3864): Cut Bank (WTARC) Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)				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
Brawl CLP	62.3	71.0			<u>63.4</u>	<u>63.7</u>			<u>14.2</u>	<u>12.5</u>		
Decade	69.3	73.8	73.8	69.3	61.8	62.3	60.7	60.5	13.8	12.0	12.6	12.7
FourOsix	65.8	78.7			61.8	62.1			12.9	11.3		
Judee	77.3	78.6	77.4	71.3	62.0	62.9	61.6	61.5	13.5	11.8	12.6	12.6
Keldin	85.2	91.6	<u>92.8</u>		62.3	62.8	61.7		11.6	10.6	11.6	
+ LCS Jet	79.3				58.6				12.1			
Loma	87.0	84.0	84.1	77.0	61.3	61.7	60.9	60.7	12.7	11.2	12.2	12.2
MT1265	74.5	83.0	81.3	76.8	61.4	61.5	60.7	60.7	12.3	11.1	12.1	12.2
+ MT1547	65.4				60.9				13.2			
+ MT1563	77.7				61.0				12.7			
+ MT1564	62.4				61.0				12.9			
+ MT1642	87.2				61.2				12.9			
+ MTCS1601	75.0				62.1				12.8			
MTF1435	63.2	70.9			60.5	60.9			13.1	11.5		
MTS1588	82.5	84.6			61.7	62.5			12.2	11.1		
+ MTV1681	67.8				60.8				13.0			
MTW1491	75.8	80.1			62.3	62.4			12.6	11.2		
Northern	75.3	81.3	81.1	76.7	61.8	61.8	60.9	60.9	12.4	11.2	12.3	12.4
Ray	78.6	80.7			59.2	59.9			12.8	11.1		
SY Clearstone 2CL	83.4	84.4	82.1	74.1	59.7	60.3	59.8	59.8	13.0	11.6	12.3	12.5
SY Monument	63.6	78.9			61.6	61.4			12.2	10.8		
SY Wolf	70.1	76.3	81.3	75.9	61.9	63.2	61.9	61.5	12.7	11.6	12.3	12.4
Warhorse	68.8	74.3	71.0	61.8	60.6	61.6	60.5	60.4	13.5	12.0	13.0	12.9
+ WB4483	83.9				62.0				12.4			
Yellowstone	<u>87.2</u>	86.1	84.3	<u>78.8</u>	60.6	61.1	60.5	60.3	12.5	11.1	12.1	12.2
Average	74.7	79.9	80.9	73.5	61.3	61.9	60.9	60.7	12.8	11.4	12.3	12.5
LSD (0.05)	15.9	ns	9.4	8.4	1.1	1.1	1.2	0.9	1.0	0.8	0.7	ns
C.V. (%)	11.9	8.3	6.8	7.8	0.9	0.9	1.1	0.6	4.3	3.1	3.1	2.7

+ = new for 2018

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 59. 2016-2018 Off-Station Winter Wheat Test (Exp. 3865): Shelby area - Devon (WTARC) Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)				Test Weight (lb/bu)			Protein (%)		
	2018	2017-18	2016-18		2018	2017-18	2016-18	2018	2017-18	
	1y	2y	3y		1y	2y	3y	1y	2y	
Brawl CLP	32.5	48.2		herbicide damage, data not used	61.5	62.4		13.4	13.3	2016 data not used
Decade	37.8	50.2	61.4		58.9	59.8	60.2	12.7	12.7	
FourOsix	41.3	52.8			58.4	60.1		12.3	12.6	
Judee	41.7	52.1	60.9		60.1	60.7	61.0	12.9	12.9	
Keldin	39.9	52.7	65.6		59.5	60.3	61.2	11.9	12.4	
+ LCS Jet	43.1				55.4			12.0		
Loma	45.1	56.4	65.7		58.5	60.0	60.2	12.8	12.8	
MT1265	39.9	55.2	62.2		57.7	59.0	59.4	12.9	12.8	
+ MT1547	39.8				58.3			12.6		
+ MT1563	43.8				58.5			12.3		
+ MT1564	38.8				58.8			13.2		
+ MT1642	50.2				57.8			12.6		
+ MTCS1601	41.1				59.8			12.7		
MTF1435	36.3	48.1			57.7	59.1		12.6	12.7	
MTS1588	49.2	58.5			60.2	60.9		12.3	12.4	
+ MTV1681	39.2				57.4			13.0		
MTW1491	44.6	59.9			58.3	59.9		12.5	12.6	
Northern	46.7	55.7	66.1		58.9	59.9	60.3	12.6	13.0	
Ray	37.6	51.5			56.0	57.4		12.6	12.8	
SY Clearstone 2CL	40.9	54.3	62.9		57.7	59.0	59.7	12.4	12.5	
SY Monument	33.9	51.7			57.0	58.3		12.6	12.6	
SY Wolf	36.9	51.0	62.8		59.6	61.3	61.8	12.8	12.6	
Warhorse	41.0	51.4	59.0		59.4	60.4	60.9	13.3	13.3	
+ WB4483	41.6				58.4			13.1		
Yellowstone	44.2	55.4	67.0		58.0	59.4	60.0	12.5	12.8	
Average	41.1	53.2	63.4		58.5	59.9	60.5	12.7	12.7	
LSD (0.05)	5.0	ns	ns		0.8	1.0	0.8	0.7	ns	
C.V. (%)	6.6	6.5	6.1		0.8	0.8	0.8	3.1	2.1	

+ = new for 2018

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 60. 2016-2018 Off-Station Winter Wheat Test (Exp. 3863): Choteau area (WTARC) Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)				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
Brawl CLP	80.3	69.9		poor stand, no harvest	62.6	62.1		14.3	13.6	
Decade	73.8	61.2	64.6		59.4	59.4	59.9	15.2	14.4	14.6
FourOsix	71.9	64.4			57.5	57.7		14.8	14.4	
Judee	70.6	59.7	65.2		58.7	58.5	59.8	15.8	15.2	15.1
Keldin	70.8	64.2	70.3		60.5	60.1	60.7	15.2	14.5	14.2
+ LCS Jet	71.7				55.7			14.7		
Loma	74.1	61.6	66.8		57.3	57.2	58.1	15.3	14.5	14.6
MT1265	62.7	58.8	65.6		57.2	57.1	57.9	15.1	14.4	14.4
+ MT1547	74.1				57.7			14.5		
+ MT1563	65.8				57.9			14.7		
+ MT1564	73.4				60.4			14.4		
+ MT1642	65.5				56.7			15.4		
+ MTCS1601	76.0				60.6			14.5		
MTF1435	58.2	56.8			57.3	57.1		14.6	14.3	
MTS1588	81.9	67.3			59.2	58.8		15.3	14.7	
+ MTV1681	59.2				57.5			15.2		
MTW1491	68.4	65.8			58.8	58.9		14.5	14.0	
Northern	72.2	62.2	66.8		59.4	58.5	59.1	14.6	14.3	14.3
Ray	62.6	58.0			56.8	56.7		14.4	14.1	
SY Clearstone 2CL	67.5	61.8	66.4		57.4	56.9	57.8	14.8	14.1	14.3
SY Monument	74.3	64.9			58.8	57.3		14.0	13.6	
SY Wolf	65.2	58.7	65.7		60.8	60.2	61.0	15.2	14.7	14.5
Warhorse	66.3	59.2	63.3		58.2	57.8	58.8	14.9	14.6	14.6
+ WB4483	62.6				57.4			16.5		
Yellowstone	70.6	60.6	66.5		57.6	56.9	58.0	14.8	14.6	14.5
Average	69.6	62.0	66.1		58.5	58.3	59.1	14.9	14.3	14.5
LSD (0.05)	9.3	ns	ns		1.3	1.2	0.9	0.6	0.6	ns
C.V. (%)	7.7	8.5	5.5		1.3	1.0	0.8	6.8	1.9	2.6

+ = new for 2018

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 61. 2015//2017 Off-Station Winter Wheat Test (Exp. 3871): Denton (CARC) Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)				Test Weight (lb/bu)		Protein (%)	
	2017		2015//17		2017	2015//17	2017	2015//17
	1y	2y	1y	2y	1y	2y	1y	2y
Brawl CLP	47.8				58.3		12.7	
Decade	41.6		2016, no harvest	42.4	53.2	54.8	13.2	12.6
FourOsix	40.1		hailed out		51.3		13.3	
Judee	36.0			32.1	53.4	55.4	13.8	12.6
Keldin	45.6				53.7		13.3	
+ LCS Jet								
Loma	23.8			34.8	50.0	53.8	14.4	12.4
MT1265	43.4			44.2	50.4	53.7	13.6	12.2
+ MT1547								
+ MT1563								
+ MT1564								
+ MT1642								
+ MTCS1601								
MTF1435	44.1				49.5		13.7	
MTS1588	30.2				53.0		13.8	
+ MTV1681								
MTW1491	45.9				51.5		12.9	
Northern	37.6			38.6	50.6	53.8	14.3	13.3
Ray	40.9				46.8		13.9	
SY Clearstone 2CL	41.6			39.1	50.2	52.4	13.2	13.2
SY Monument	39.6				50.7		12.7	
SY Wolf	49.8			41.1	55.6	56.2	12.8	12.4
Warhorse	36.0			37.1	51.5	53.2	14.0	13.1
+ WB4483								
Yellowstone	43.7			41.7	50.2	53.2	13.8	12.6
Average	39.6			37.8	52.2	54.0	13.5	12.7
LSD (0.05)	5.4			ns	1.3	ns	0.5	ns
C.V. (%)	7.3			19.1	1.4	2.7	2.1	5.6

+ = new for 2018

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 62. 2015-2018 Off-Station Winter Wheat Test (Exp. 3872): Geraldine (CARC) Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)				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
Brawl CLP	75.5	77.7			65.1	65.0			13.5	12.8		
Decade	79.7	80.4	77.5	76.9	64.0	63.7	63.5	62.6	12.8	12.3	11.2	11.6
FourOsix	70.0	76.7			63.6	63.4			11.9	11.5		
Judee	78.9	74.6	73.6	74.6	64.7	63.5	63.7	63.3	12.3	11.9	11.2	11.5
Keldin	85.7	88.6	92.7		64.2	63.8	63.8		12.1	11.3	10.5	
+ LCS Jet	82.9				60.8				12.0			
Loma	80.0	76.7	76.9	77.0	63.0	62.6	62.4	61.5	11.7	11.5	10.9	11.4
MT1265	82.1	83.6	87.4	85.1	62.9	62.1	62.2	61.8	11.7	11.4	10.7	11.1
+ MT1547	68.3				63.3				11.9			
+ MT1563	81.5				63.4				11.4			
+ MT1564	75.1				63.9				11.7			
+ MT1642	80.5				62.8				11.8			
+ MTCS1601	82.5				64.2				12.2			
MTF1435	56.0	65.1			62.4	61.9			12.6	12.1		
MTS1588	76.6	77.6			64.2	63.8			11.9	11.7		
+ MTV1681	73.2				62.9				11.9			
MTW1491	75.5	80.5			63.2	62.8			11.4	11.2		
Northern	78.7	79.3	82.9	81.1	63.4	63.0	62.7	61.7	12.3	12.2	11.3	12.0
Ray	76.2	80.6			61.8	61.2			12.0	11.7		
SY Clearstone 2CL	81.1	81.3	85.1	82.0	62.8	62.2	62.2	61.6	11.8	11.4	10.6	11.0
SY Monument	78.4	82.7			63.3	62.6			11.7	11.1		
SY Wolf	78.3	85.0	88.0	86.5	64.2	64.2	64.3	63.5	12.3	11.8	10.9	11.3
Warhorse	74.3	72.1	74.9	74.1	63.6	63.2	63.0	62.2	12.8	12.6	11.9	12.1
+ WB4483	75.9				63.5				12.0			
Yellowstone	74.3	77.8	81.8	83.0	62.8	62.4	62.5	62.1	11.7	11.5	10.7	11.1
Average	76.9	78.8	82.1	80.0	63.3	63.0	63.0	62.2	12.1	11.7	11.0	11.5
LSD (0.05)	6.6	ns	9.3	7.8	0.5	0.8	0.7	0.9	0.3	0.6	0.6	0.5
C.V. (%)	5.2	6.5	6.6	6.7	0.4	0.6	0.7	1.0	1.3	2.5	3.1	3.1

+ = new for 2018

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 63. 2015//2018 Off-Station Winter Wheat Test (Exp. 3875): Belt (CARC) Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)			Test Weight (lb/bu)			Protein (%)			
	2018	2017-18	2015//18	2018	2017-18	2015//18	2018	2017-18	2015//18	
	1y	2y	3y	1y	2y	3y	1y	2y	3y	
Brawl CLP	57.4	55.8	2016, no harvest, jointed goat- grass infest- ation	62.1	63.4		13.6	11.4		
Decade	73.5	60.2		54.7	61.9	62.2	59.2	12.5	10.9	10.4
FourOsix	71.4	60.5			61.7	62.0		12.0	10.4	
Judee	70.2	57.3		50.4	62.2	62.7	60.0	12.7	10.9	10.1
Keldin	72.7	61.4		60.8	61.9		13.3	10.8		
+ LCS Jet	69.6			58.2			11.8			
Loma	80.3	62.9	57.1	61.6	61.7	59.1	11.8	10.4	9.9	
MT1265	66.8	58.2	58.4	60.1	60.8	59.0	11.7	10.2	9.6	
+ MT1547	69.2			61.6			11.8			
+ MT1563	73.5			61.2			11.7			
+ MT1564	70.5			62.3			12.1			
+ MT1642	77.7			60.7			11.9			
+ MTCS1601	72.4			62.5			12.5			
MTF1435	57.1	56.0		60.6	60.5		12.5	10.5		
MTS1588	75.2	60.7		62.2	62.4		12.3	10.9		
+ MTV1681	71.9			60.7			12.1			
MTW1491	69.7	60.4		61.0	61.7		11.8	10.3		
Northern	70.3	60.6	57.1	61.1	61.3	58.4	12.8	10.8	10.0	
Ray	65.6	58.9		59.5	59.6		11.8	10.2		
SY Clearstone 2CL	73.5	64.1	59.8	60.8	61.0	58.6	11.5	10.1	9.9	
SY Monument	79.1	64.3		60.5	60.7		11.8	10.2		
SY Wolf	68.4	60.3	59.2	62.0	62.7	60.7	12.8	10.6	10.5	
Warhorse	73.7	60.2	56.0	61.4	61.9	59.3	12.9	11.0	10.7	
+ WB4483	74.2			62.1			12.3			
Yellowstone	68.7	60.2	58.0	60.9	61.3	59.1	11.7	10.2	9.7	
Average	70.9	60.1	56.8	61.2	61.6	59.3	12.2	10.6	10.1	
LSD (0.05)	9.0	ns	ns	0.8	1.1	1.3	0.5	ns	ns	
C.V. (%)	6.9	10.2	9.0	0.7	0.9	1.2	2.3	4.5	4.9	

+ = new for 2018

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 64. 2016-2018 Off-Station Winter Wheat Test (Exp. 3876): Highwood (CARC) Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)				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
Brawl CLP	21.5	28.6		2015, not planted	63.7	63.6		15.4	14.9	
Decade	45.2	54.7	54.8		63.5	63.4	62.3	14.1	13.1	12.4
FourOsix	38.9	50.2			63.5	63.1		13.6	12.9	
Judee	50.8	53.7	57.8		64.4	63.5	63.4	13.8	13.4	12.9
Keldin	32.6	44.0	48.8		63.1	62.4	62.3	14.9	13.7	13.0
+ LCS Jet	39.4				61.3			13.4		
Loma	36.6	48.8	51.0		63.0	62.5	62.2	14.6	13.5	12.9
MT1265	34.5	47.6	50.0		63.4	62.6	62.4	14.0	13.0	12.4
+ MT1547	36.0				63.3			13.7		
+ MT1563	39.3				63.5			13.3		
+ MT1564	26.9				63.8			14.5		
+ MT1642	34.6				63.1			14.5		
+ MTCS1601	31.4				63.0			14.6		
MTF1435	26.1	40.4			62.7	62.0		13.6	12.7	
MTS1588	36.7	42.5			63.0	62.6		14.2	13.5	
+ MTV1681	39.9				63.2			13.2		
MTW1491	36.0	50.5			63.3	62.9		13.3	12.5	
Northern	33.8	47.2	50.9		63.5	62.9	62.6	14.8	13.7	13.3
Ray	31.1	45.6			62.5	61.3		13.9	13.0	
SY Clearstone 2CL	45.9	56.8	60.7		63.0	62.1	61.9	12.9	12.3	12.1
SY Monument	46.4	55.7			63.6	62.9		12.8	12.1	
SY Wolf	29.8	45.1	44.4		63.7	63.8	63.2	14.8	13.5	12.7
Warhorse	43.3	47.3	54.3		63.1	61.9	61.6	14.1	13.9	13.3
+ WB4483	37.0				63.9			14.8		
Yellowstone	35.2	44.2	46.5		63.1	62.4	62.2	14.3	13.7	12.9
Average	36.4	47.2	51.9		63.2	62.7	62.4	14.0	13.2	12.8
LSD (0.05)	8.8	11.3	ns		0.5	1.1	ns	0.9	0.9	ns
C.V. (%)	13.3	11.3	10.8		0.4	0.8	1.0	3.6	3.2	3.9

+ = new for 2018

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 65. 2016-2018 Off-Station Winter Wheat Test (Exp. 3880): Huntley Irrigated (SARC) Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)				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
Brawl CLP	117.6	108.8		2015, not planted	61.7	63.2		13.5	13.1	
Decade	105.5	98.1	99.3		59.7	60.5	60.6	13.8	12.8	12.3
FourOsix	83.0	108.1			59.0	61.8		14.2	12.8	
Judee	86.3	90.7	87.4		60.6	62.4	62.2	13.5	12.9	12.4
Keldin	127.0	119.3	119.7		61.8	61.8	62.0	13.0	12.8	12.1
+ LCS Jet	135.3				58.3			13.5		
Loma	87.8	97.0	100.0		57.0	59.8	60.2	13.8	12.9	12.6
MT1265	92.0	98.5	102.7		58.6	60.3	60.5	13.9	12.7	12.4
+ MT1547	94.5				59.3			13.9		
+ MT1563	84.3				57.2			14.1		
+ MT1564	101.6				58.8			13.6		
+ MT1642	99.9				56.6			14.8		
+ MTCS1601	104.5				60.7			13.9		
MTF1435	76.0	79.7			60.4	61.4		14.5	13.3	
MTS1588	92.5	105.2			59.5	61.9		14.4	13.0	
+ MTV1681	88.3				58.1			14.3		
MTW1491	93.4	103.5			58.9	61.2		13.5	12.4	
Northern	104.9	104.8	106.9		59.5	60.8	60.7	13.2	12.5	12.3
Ray	107.2	102.2			58.6	60.0		13.7	12.8	
SY Clearstone 2CL	100.1	101.3	101.0		58.3	60.4	60.2	13.8	12.7	12.4
SY Monument	115.5	110.9			60.4	61.7		13.3	12.4	
SY Wolf	114.9	109.5	105.6		61.5	62.4	62.1	13.8	13.1	12.8
Warhorse	103.8	102.3	99.5		60.7	62.0	61.9	14.4	13.7	13.4
+ WB4483	86.5				56.3			15.2		
Yellowstone	96.0	106.5	108.5		58.5	60.8	60.9	13.3	12.4	12.2
Average	99.9	102.7	103.1		59.2	61.3	61.1	13.9	12.8	12.5
LSD (0.05)	16.7	ns	14.1		1.4	ns	1.5	0.5	ns	0.7
C.V. (%)	10.2	12.5	7.9		1.4	1.7	1.5	2.4	3.7	3.2

+ = new for 2018

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 66. 2015-2018 Off-Station Winter Wheat Test (Exp. 3881): Rapelje (SARC) Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)				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
Brawl CLP	115.4	85.4			64.4	65.3			14.6	12.1		
Decade	109.5	84.4	73.5	72.7	61.8	63.2	62.8	62.1	13.9	11.5	11.1	11.0
FourOsix	119.3	89.1			62.8	62.9			13.5	10.7		
Judee	105.4	81.9	72.0	70.4	63.0	64.0	63.4	62.4	13.5	11.1	11.0	11.4
Keldin	123.0	93.3	81.3		61.9	63.1	62.9		13.6	10.8	10.3	
+ LCS Jet	126.4				59.3				12.8			
Loma	118.6	86.8	77.1	77.2	60.4	62.0	62.1	61.4	12.5	10.5	10.4	10.8
MT1265	124.9	94.8	80.5	82.0	60.0	60.6	60.7	60.6	13.4	10.6	10.5	10.8
+ MT1547	119.6				62.9				13.6			
+ MT1563	113.2				60.9				13.3			
+ MT1564	127.9				63.7				13.4			
+ MT1642	122.7				57.6				13.3			
+ MTCS1601	123.4				63.3				13.8			
MTF1435	95.9	77.0			60.9	61.4			13.6	10.9		
MTS1588	119.9	88.2			63.3	64.1			12.9	10.7		
+ MTV1681	114.2				60.5				13.9			
MTW1491	113.2	87.6			61.6	62.2			13.0	10.5		
Northern	130.8	97.5	83.7	82.7	61.9	62.7	62.5	61.6	13.0	10.7	10.7	11.1
Ray	118.1	88.6			58.0	59.4			12.9	10.5		
SY Clearstone 2CL	119.2	90.1	80.1	79.2	60.4	61.2	61.2	60.8	13.1	10.4	10.3	10.6
SY Monument	138.9	97.6			62.6	62.3			12.8	10.2		
SY Wolf	123.0	92.3	81.3	80.7	61.8	63.4	63.5	63.0	13.3	10.8	10.5	10.7
Warhorse	120.4	87.0	76.0	74.8	61.4	62.5	62.2	61.4	14.6	11.6	11.3	11.7
+ WB4483	117.5				62.2				13.3			
Yellowstone	118.9	88.7	79.2	81.0	61.1	61.9	61.7	61.3	13.4	10.7	10.5	10.5
Average	119.2	88.8	78.5	77.8	61.5	62.5	62.3	61.6	13.4	10.8	10.7	11.0
LSD (0.05)	13.5	ns	ns	6.4	1.5	1.5	0.9	1.0	0.9	0.8	ns	0.7
C.V. (%)	6.9	7.6	5.5	5.7	1.5	1.2	0.8	1.1	3.7	3.5	4.0	4.5

+ = new for 2018

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 67. 2015-2018 Off-Station Winter Wheat Test (Exp. 3882): Hysham [SARC] Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)			Test Weight (lb/bu)			Protein (%)			
	2017	2016-17	2015-17	2017	2016-17	2015-17	2017	2016-17	2015-17	
	1y	2y	3y	1y	2y	3y	1y	2y	3y	
Brawl CLP	2018, no harvest hailed out	55.8			63.6			12.2		
Decade		48.9	46.1	48.1	61.1	58.6	60.0	12.8	12.8	13.2
FourOsix		53.9			62.8			12.4		
Judee		48.9	35.9	39.7	62.0	57.4	59.4	12.6	13.8	14.0
Keldin		54.9	47.7		62.8	58.4		11.8	12.5	
+ LCS Jet										
Loma		54.7	44.3	46.1	61.5	57.3	58.6	12.0	13.5	13.9
MT1265		59.7	51.1	51.2	62.3	58.6	59.8	12.1	12.8	13.0
+ MT1547										
+ MT1563										
+ MT1564										
+ MT1642										
+ MTCS1601										
MTF1435	56.3			63.0			11.9			
MTS1588	53.1			62.5			12.7			
+ MTV1681										
MTW1491	63.0			62.6			11.7			
Northern	53.6	43.1	46.0	61.6	57.4	58.5	13.2	13.9	13.7	
Ray	48.5			61.4			13.0			
SY Clearstone 2CL	56.7	49.9	50.4	62.0	57.8	59.1	12.1	13.0	13.2	
SY Monument	59.9			60.8			11.0			
SY Wolf	56.5	42.9	45.5	64.3	59.6	60.9	11.1	12.1	12.6	
Warhorse	54.4	44.8	46.3	62.1	58.3	59.6	13.7	14.1	13.8	
+ WB4483										
Yellowstone	63.8	54.0	54.0	62.7	58.6	59.8	11.5	12.7	13.0	
Average	54.7	44.5	46.2	62.3	58.0	59.5	12.2	13.2	13.4	
LSD (0.05)	8.1	8.4	6.3	1.0	ns	1.3	1.0	ns	ns	
C.V. (%)	8.2	8.8	8.0	0.9	1.4	1.2	5.2	4.6	4.6	

+ = new for 2018

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 68. 2015-2018 Off-Station Winter Wheat Test (Exp. 3884): Fly Creek (Hardin area - SARC) Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)				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
Brawl CLP	105.4	67.9			62.4	63.4			12.9	13.3		
Decade	113.9	71.1	61.8	60.9	62.8	61.9	59.8	59.6	12.2	13.4	13.4	13.6
FourOsix	95.8	73.4			63.3	62.2			12.2	13.2		
Judee	107.9	68.9	57.0	58.1	62.8	61.6	59.3	59.8	13.0	13.9	13.9	14.0
Keldin	109.6	79.2	70.2		58.3	62.2	60.6		12.3	12.4	12.7	
+ LCS Jet	90.4				60.6				12.9			
Loma	106.7	70.7	63.0	63.0	62.6	60.4	58.7	58.6	12.4	13.4	13.6	13.5
MT1265	95.5	71.5	64.5	65.2	60.4	60.0	58.7	58.9	12.0	13.5	13.6	13.5
+ MT1547	104.8				60.8				12.5			
+ MT1563	94.5				55.6				12.6			
+ MT1564	95.6				60.6				12.0			
+ MT1642	103.7				62.5				13.1			
+ MTCS1601	103.8				61.2				12.1			
MTF1435	98.1	55.2			59.2	59.6			12.7	13.8		
MTS1588	96.0	65.0			62.6	61.4			11.8	13.5		
+ MTV1681	102.5				61.5				13.5			
MTW1491	73.1	64.9			57.7	62.0			13.8	12.8		
Northern	101.0	68.8	58.7	59.6	59.5	60.7	59.2	59.2	12.3	13.7	13.8	13.8
Ray	95.5	65.3			62.2	58.0			12.4	13.6		
SY Clearstone 2CL	104.0	68.5	62.2	63.3	60.3	60.5	58.8	59.0	12.1	13.3	13.3	13.4
SY Monument	101.2	73.4			57.3	61.0			12.3	12.0		
SY Wolf	98.3	71.6	62.2	62.3	62.4	62.7	61.0	60.8	12.5	13.3	13.2	13.4
Warhorse	102.3	69.6	57.2	58.1	63.3	61.4	58.8	59.2	12.2	14.1	14.2	14.1
+ WB4483	95.8				58.6				12.1			
Yellowstone	97.1	68.2	61.6	60.7	64.5	59.7	58.4	58.7	12.8	13.1	13.2	13.5
Average	99.7	69.0	61.8	61.2	60.9	61.1	59.6	59.3	12.5	13.3	13.5	13.6
LSD (0.05)	6.7	ns	ns	ns	2.3	ns	1.6	ns	0.7	ns	ns	ns
C.V. (%)	10.9	9.2	8.3	7.7	2.2	2.4	1.6	1.6	3.0	5.0	3.6	3.3

+ = new for 2018

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 69. 2015-2018 Off-Station Winter Wheat Test (Exp. 3885): Molt (SARC) Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)				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
Brawl CLP	43.7	53.3			63.5	64.2			11.6	11.1		
Decade	70.5	62.9	59.3	62.2	62.1	62.5	62.0	62.3	12.1	10.8	10.3	10.3
FourOsix	53.4	59.6			60.5	61.6			11.3	10.1		
Judee	51.1	52.3	50.7	57.8	61.9	62.7	61.7	62.0	10.3	9.8	9.9	10.0
Keldin	63.4	60.6	60.0		61.4	62.1	61.8		11.7	10.5	9.9	
+ LCS Jet	72.9				59.2				11.5			
Loma	54.8	54.0	55.5	60.6	60.4	60.9	60.7	61.2	10.9	10.5	10.3	10.3
MT1265	62.3	65.2	61.7	66.3	58.9	60.5	59.9	60.2	11.4	10.2	9.9	9.9
+ MT1547	53.8				60.4				11.5			
+ MT1563	49.8				60.0				11.2			
+ MT1564	48.1				61.6				11.3			
+ MT1642	51.0				59.8				11.2			
+ MTCS1601	51.2				63.2				11.2			
MTF1435	41.1	47.2			60.3	60.8			11.1	10.3		
MTS1588	47.3	53.5			62.3	63.0			11.2	10.4		
+ MTV1681	55.2				60.5				11.1			
MTW1491	57.6	58.7			61.3	61.9			11.3	10.2		
Northern	69.1	63.0	59.0	65.0	62.6	62.4	62.1	62.2	11.2	10.4	10.2	10.1
Ray	56.9	55.6			60.5	60.2			10.7	10.2		
SY Clearstone 2CL	52.6	56.0	55.4	58.3	61.0	61.4	60.7	60.9	10.9	10.0	10.0	9.9
SY Monument	59.7	61.7			61.0	61.2			10.1	9.4		
SY Wolf	51.8	64.0	60.5	64.6	62.4	63.5	63.1	63.0	10.3	9.9	9.7	9.9
Warhorse	60.8	56.4	53.8	58.8	61.7	62.0	61.4	61.7	11.1	10.7	10.6	10.6
+ WB4483	56.8				59.6				12.1			
Yellowstone	53.2	59.3	58.8	62.7	61.7	61.9	60.9	61.1	10.7	10.1	10.1	10.0
Average	55.5	57.8	57.5	61.8	61.1	61.9	61.4	61.6	11.2	10.2	10.1	10.1
LSD (0.05)	9.0	ns	ns	ns	1.8	1.4	1.1	0.9	1.1	ns	ns	ns
C.V. (%)	9.8	13.4	11.9	10.4	1.8	1.0	1.1	1.1	6.1	4.5	5.4	4.2

+ = new for 2018

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 70. 2016//2018 Off-Station Winter Wheat Test (Exp. 3886): Fort Smith (SARC) Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)				Test Weight (lb/bu)		Protein (%)	
	2018		206//18		2018	206//18	2018	206//18
	1y	2y	1y	2y	1y	2y	1y	2y
Brawl CLP	55.8	2017, not planted		2015, not planted	61.6		15.4	
Decade	83.7		67.3		59.9	58.0	14.3	13.7
FourOsix	77.3				59.6		13.0	
Judee	78.7		61.7		61.4	59.7	13.9	13.1
Keldin	96.7		81.0		60.8	59.7	12.9	12.4
+ LCS Jet	93.6				58.0		12.5	
Loma	92.8		67.2		58.4	56.2	12.6	13.1
MT1265	90.1		70.7		57.1	55.7	13.1	13.2
+ MT1547	78.6				59.9		13.0	
+ MT1563	90.3				57.4		12.6	
+ MT1564	69.8				60.8		13.2	
+ MT1642	93.0				54.8		12.7	
+ MTCS1601	92.3				61.5		13.1	
MTF1435	68.7				56.9		13.9	
MTS1588	93.6				61.5		12.8	
+ MTV1681	80.0				58.2		13.4	
MTW1491	82.3				59.7		12.2	
Northern	89.4		64.6		58.7	55.6	13.2	13.7
Ray	88.2				56.6		12.8	
SY Clearstone 2CL	92.3		68.6		56.4	55.9	12.7	12.6
SY Monument	65.6				61.0		12.8	
SY Wolf	70.1		58.1		59.6	58.4	13.0	13.0
Warhorse	82.5		64.9		58.9	57.7	14.3	13.6
+ WB4483	89.7				60.2		13.1	
Yellowstone	87.0		67.2		59.4	57.6	12.8	12.6
Average	83.3		67.1		59.1	57.4	13.2	13.1
LSD (0.05)	12.1		ns		2.1	2.3	0.5	ns
C.V. (%)	8.3		9.2		2.0	1.7	2.4	5.2

+ = new for 2018

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 71. 2015-2018 Off-Station Winter Wheat Test (Exp. 38): Combined Locations - Yield, Test Weight and Protein

Cultivar/Line	Grain Yield (bu/a)				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	14	30	46	61	14	30	46	61	14	30	45	60
Brawl CLP	64.5	61.8			62.8	62.9			14.1	13.1		
Decade	71.8	63.7	63.0	61.1	61.1	60.9	60.2	59.8	13.2	13.0	12.7	12.6
FourOsix	67.3	64.9			60.6	60.7			13.4	12.5		
Judee	69.1	61.5	61.8	58.6	61.5	61.4	60.9	60.4	13.3	13.0	12.9	12.8
Keldin	76.2	69.5	71.5		61.4	61.2	60.9		13.0	12.5	12.2	
+ LCS Jet	75.9				58.0				13.4			
Loma	73.0	64.6	64.6	62.4	60.0	60.1	59.6	59.2	13.3	12.7	12.7	12.6
MT1265	70.1	66.2	67.0	65.0	59.5	59.6	59.4	59.2	13.4	12.6	12.4	12.3
+ MT1547	66.9				60.5				12.9			
+ MT1563	69.1				59.9				13.9			
+ MT1564	66.9				61.3				13.2			
+ MT1642	72.9				58.8				12.9			
+ MTCS1601	71.4				61.8				13.3			
MTF1435	56.6	56.6			59.4	59.5			13.2	12.7		
MTS1588	72.5	65.3			61.4	61.3			13.3	12.7		
+ MTV1681	66.1				59.9				13.2			
MTW1491	69.0	66.1			60.7	60.7			13.7	12.3		
Northern	74.1	66.2	66.0	63.7	60.7	60.4	59.9	59.4	13.4	12.9	12.9	12.7
Ray	69.5	63.6			58.4	58.4			13.1	12.6		
SY Clearstone 2CL	71.5	66.0	66.9	63.4	59.5	59.6	59.3	58.9	13.1	12.5	12.4	12.4
SY Monument	71.9	66.8			60.6	60.1			13.1	11.8		
SY Wolf	68.4	65.4	66.1	63.6	61.6	62.0	61.4	60.9	13.2	12.6	12.5	12.4
Warhorse	69.5	62.0	61.7	58.9	60.6	60.4	60.0	59.5	13.8	13.3	13.2	13.0
+ WB4483	68.9				60.3				13.6			
Yellowstone	70.2	65.6	66.9	64.8	59.8	59.9	59.6	59.3	12.6	12.5	12.5	12.3
Average	69.7	64.5	65.5	62.4	60.4	60.5	60.1	59.6	13.3	12.7	12.6	12.6
LSD (0.05)	5.0	3.2	2.4	2.0	0.6	0.4	0.3	0.3	0.3	0.2	0.2	0.2
C.V. (%)	9.6	9.7	9.1	8.9	1.4	1.3	1.4	1.4	3.2	3.6	3.6	3.6

+ = new for 2018

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 72. 2013-2018 Intrastate (Exp. 35) and Off-Station (Exp. 38) Winter Wheat Tests: Combined Locations Yield

Cultivar/Line + = new for 2018 in Off Sta.	Grain Yield (bu/a)										
	2018	2017-18		2016-18		2015-18		2014-18		2013-18	
		no Yll	w/Yll	no Yll	w/Yll	no Yll	w/Yll	no Yll	w/Yll	no Yll	w/Yll
Location-years	23	46	39	71	64	92	85	112	105	133	126
Brawl CLP	68.0	64.3	64.5								
Decade	71.7	64.7	65.5	64.0	64.4	62.2	62.3	63.5	63.8	63.1	63.3
FourOsix	71.3	68.2	67.8								
Judee	71.1	64.5	64.4	65.4	65.4	62.6	62.5	63.8	63.7	63.1	63.0
Keldin	80.1	73.6	73.3	75.8	75.9						
+ LCS Jet	78.3										
Loma	75.0	67.9	67.8	68.9	69.0	67.5	67.3				
MT1265	74.8	70.3	69.9	72.7	72.7	70.7	70.6				
+ MT1547	72.0										
+ MT1563	73.2										
+ MT1564	70.9										
+ MT1642	76.3										
+ MTCS1601	73.3										
MTF1435	61.2	60.3	59.3								
MTS1588	74.7	68.6	68.2								
+ MTV1681	70.3										
MTW1491	73.3	70.2	69.3								
Northern	76.0	68.8	69.1	70.3	70.7	68.7	68.8	69.8	70.0	69.5	69.6
Ray	73.2	67.5	67.2								
SY Clearstone 2CL	74.4	69.2	69.0	71.2	71.2	68.5	68.5	69.5	69.4	68.9	68.8
SY Monument	75.8	70.9	70.3								
SY Wolf	70.7	67.5	67.4	69.8	70.0	67.6	67.3				
Warhorse	71.7	65.2	65.1	65.8	65.7	63.5	63.4	64.1	64.0	63.8	63.6
+ WB4483	70.5										
Yellowstone^{1/}	73.3		68.5		71.1		69.6		70.9		70.3
Average	72.8	67.6	67.4	69.3	69.6	66.4	66.7	66.2	67.0	65.7	66.4
LSD (0.05)	4.2	2.9	2.9	2.6	2.6	2.3	2.3	2.2	2.1	2.0	1.9
C.V. (%)	9.9	9.6	9.6	11.5	11.0	12.0	11.4	12.5	11.5	12.7	11.8

bold = indicates highest value within a column

1/ = Yellowstone misplanted in 2017 Intrastate Tests

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

Table 73. 2013-2018 Intrastate (Exp. 35) and Off-Station (Exp. 38) Winter Wheat Tests: Combined Locations Test Weight

Cultivar/Line + = new for 2018 in Off Sta.	Grain Yield (bu/a)										
	2018	2017-18		2016-18		2015-18		2014-18		2013-18	
		no Yll	w/Yll	no Yll	w/Yll	no Yll	w/Yll	no Yll	w/Yll	no Yll	w/Yll
Location-years	23	46	39	71	64	92	85	112	105	133	126
Brawl CLP	63.0	62.8	63.0								
Decade	61.0	60.8	60.9	60.1	60.1	59.7	59.7	59.9	59.9	59.7	59.6
FourOsix	61.1	61.0	61.0								
Judee	61.9	61.6	61.7	61.1	61.2	60.8	60.7	60.8	60.8	60.7	60.6
Keldin	61.8	61.5	61.5	61.1	61.1						
+ LCS Jet	58.6										
Loma	60.4	60.3	60.3	59.9	59.8	59.6	59.5				
MT1265	60.2	60.0	60.0	59.9	59.8	59.6	59.5				
+ MT1547	61.1										
+ MT1563	60.4										
+ MT1564	61.7										
+ MT1642	59.3										
+ MTCS1601	62.0										
MTF1435	59.8	59.8	59.7								
MTS1588	61.8	61.5	61.5								
+ MTV1681	60.2										
MTW1491	61.1	61.0	61.0								
Northern	61.0	60.5	60.7	60.1	60.1	59.8	59.8	59.9	59.9	59.8	59.8
Ray	58.7	58.7	58.6								
SY Clearstone 2CL	60.0	59.9	59.9	59.6	59.6	59.3	59.2	59.4	59.3	59.2	59.2
SY Monument	60.8	60.2	60.4								
SY Wolf	62.0	61.9	62.1	61.4	61.5	61.1	61.1				
Warhorse	61.0	60.7	60.7	60.3	60.3	59.9	59.9	60.0	60.0	59.9	59.8
+ WB4483	60.6										
Yellowstone^{1/}	60.2		60.1		59.8		59.6		59.7		59.6
Average	60.8	60.8	60.8	60.4	60.3	60.0	59.9	60.0	59.9	59.8	59.8
LSD (0.05)	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3
C.V. (%)	1.5	1.5	1.4	1.8	1.7	1.8	1.7	1.8	1.7	2.0	1.9

bold = indicates highest value within a column

1/ = Yellowstone misplanted in 2017 Intrastate Tests

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

Table 74. 2013-2018 Intrastate (Exp. 35) and Off-Station (Exp. 38) Winter Wheat Tests: Combined Locations Protein

Cultivar/Line + = new for 2018 in Off Sta.	Grain Yield (bu/a)										
	2018	2017-18		2016-18		2015-18		2014-18		2013-18	
		no Yll	w/Yll	no Yll	w/Yll	no Yll	w/Yll	no Yll	w/Yll	no Yll	w/Yll
Location-years	23	46	39	69	62	90	83	108	101	130	123
Brawl CLP	13.7	13.1	13.1								
Decade	13.5	12.9	13.0	12.6	12.6	12.6	12.5	12.7	12.7	12.9	12.9
FourOsix	13.0	12.6	12.6								
Judee	13.5	13.1	13.1	12.8	12.8	12.8	12.7	12.9	12.9	13.0	12.9
Keldin	12.8	12.4	12.4	12.0	12.0						
+ LCS Jet	12.7										
Loma	13.1	12.8	12.8	12.6	12.5	12.5	12.5				
MT1265	13.0	12.6	12.6	12.3	12.2	12.2	12.2				
+ MT1547	13.0										
+ MT1563	12.7										
+ MT1564	13.0										
+ MT1642	13.2										
+ MTCS1601	13.1										
MTF1435	13.2	12.6	12.7								
MTS1588	13.0	12.7	12.7								
+ MTV1681	13.2										
MTW1491	12.7	12.3	12.3								
Northern	13.1	12.9	12.9	12.7	12.6	12.6	12.6	12.8	12.8	12.9	12.9
Ray	12.9	12.6	12.6								
SY Clearstone 2CL	12.9	12.5	12.5	12.2	12.2	12.3	12.2	12.4	12.4	12.5	12.5
SY Monument	12.3	11.8	11.8								
SY Wolf	13.1	12.6	12.6	12.4	12.3	12.3	12.3				
Warhorse	13.7	13.3	13.3	13.0	13.0	12.9	12.9	13.1	13.1	13.1	13.1
+ WB4483	13.5										
Yellowstone^{1/}	12.8		12.5		12.2		12.1		12.4		12.5
Average	13.1	12.7	12.7	12.5	12.4	12.5	12.5	12.8	12.7	12.9	12.8
LSD (0.05)	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
C.V. (%)	3.4	3.7	3.5	4.1	4.0	4.3	4.3	4.3	4.2	4.5	4.4

bold = indicates highest value within a column

1/ = Yellowstone misplanted in 2017 Intrastate Tests

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

Table 75. 2013//2018 Combined Locations Yield under Sawfly Pressure and % Sawfly Cutting
 (Note: Sawfly cutting in each location-year $\geq 10\%$, see table on next page for locations)

Cultivar/Line + = new for 2018 in Off Sta.	Grain Yield (bu/a)					Sawfly Cutting (%)				
	2018	2017-18	2016-18	2015-18	2013//18	2018	2017-18	2016-18	2015-18	2013//18
Location-years	6	8	10	11	13	6	8	10	11	13
Brawl CLP	60.6	56.4				29	35			
Decade	57.4	52.4	57.6	56.6	57.6	45	45	43	39	36
FourOsix	56.9	53.6				62	58			
Judee	58.7	53.2	60.6	59.0	60.6	45	40	37	34	31
Keldin	59.2	54.8	63.3			51	53	53		
+ LCS Jet	57.0					58				
Loma	62.7	56.9	61.6	60.2		33	32	28	27	
MT1265	56.4	52.9	58.6	58.1		61	58	56	53	
+ MT1547	56.3					67				
+ MT1563	58.8					57				
+ MT1564	56.7					55				
+ MT1642	60.2					49				
+ MTCS1601	60.0					39				
MTF1435	53.9	50.1				54	49			
MTS1588	66.0	60.0				3	6			
+ MTV1681	51.5					43				
MTW1491	57.9	53.0				65	61			
Northern	61.0	55.3	60.3	59.9	62.0	58	51	46	43	38
Ray	56.6	52.2				58	53			
SY Clearstone 2CL	59.7	54.7	62.4	61.2	62.4	68	61	59	55	49
SY Monument	61.3	56.4				54	53			
SY Wolf	56.8	52.8	59.6	58.7		35	39	37	35	
Warhorse	55.6	51.3	55.5	54.4	56.2	6	7	5	5	5
+ WB4483	56.0					40				
Yellowstone^{1/}	59.4	55.0	61.3	59.9	61.0	65	57	56	52	46
Average	58.3	54.2	60.1	58.7	59.9	48.0	44.4	41.9	38.0	
LSD (0.05)	5.5	4.4	ns	ns	4.4	15.5	15.2	12.4	11.8	
C.V. (%)	8.3	8.1	10.1	9.5	9.3	28	34	33	36	

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 76. 2003-2018 All Locations with % Sawfly Cutting data (incl. selected variety cutting)

Location	Year	Cutting	Rampart	Genou	Judee	Bearpaw	Warhorse	Loma	WB4483	MTS1588	Yellowstone
√ = locations used in analysis in Table. 72			% cutting								
Havre	2018	6	-	-	5	2	0	4	3	2	8
Havre	2017	<1									
Havre	2016	none recorded									
Havre	2015	5	1	1	1	2	2	2			2
Havre	2014	2	1	1	1	1	1	2			2
√ Havre	2013	10	4	7	5	6	2				10
Havre	2012	8	0	6	2	3	2				9
Havre (no harv.)	2011	6	0	1	4	1	1				4
Havre	2010	12	6	16	5	2	1				9
Havre	2009	22	0	1	4	1					21
Havre	2008	23	13	9	8						18
Havre	2007	27	0	8							40
Havre	2006	25	3	8							23
Havre	2005	32	8	18							43
Turner	2017	<1									
Turner	2014	hail - no harvest									
Turner	2013	3	2	1	1	1	1				7
Turner	2012	18	12	18	8	20	2				18
Turner	2011	13	1	7	1	4	1				20
North Havre	2010	6	1	4	4	1					10
North Havre	2009	poor stand - no harv.									
North Havre	2008	40	22	30							50
North Havre	2007	53	12	20							82
North Havre	2006	34	4	4							73
North Havre	2005	54	7	8							70
North Havre	2004	winterkill - no harv.									
North Havre	2003	46	3	8							43
√ Loma	2018	64	-	-	65	-	17	32	62	7	85
√ Loma	2017	43	-	-	41	11	13	38		24	31
Loma	2016	2	0	-	1	0	0	4			2
√ Loma	2015	12	2	9	1	7	0	12			15
Loma	2014	4	1	4	4	1	1				5
√ Loma	2013	20	17	23	30	20	8				15
Loma	2012	65	17	27	32	13	5				98
Loma	2011	19	10	22	10	10	5				22

Table 76. 2003-2018 All Locations with % Sawfly Cutting data (incl. selected variety cutting)

Location	Year	Cutting	Rampart	Genou	Judee	Bearpaw	Warhorse	Loma	WB4483	MTS1588	Yellowstone
√ = locations used in analysis in Table. 72			% cutting								
Loma	2010	72	10	52	53	8					99
Loma	2009	60	17	50	32						85
Loma	2008	7	4	4							10
Loma	2007	4	0	2							2
Loma	2006	none recorded									
Loma	2005	2	0	0							0
√ Conrad	2018	18	-	-	9	8	4	11	14	1	20
√ Carter/Ft. Benton	2018	53	-	-	30	25	1	18	27	2	92
Carter/Ft. Benton	2017	54	-	-	22	18	2	27	42	2	-
√ Carter/Ft. Benton	2016	27	5	-	6	8	1	8	10		20
√ The Knees	2018		-	-	67	-	2	36	37	0	74
√ Shelby/Devon	2018		-	-	12	-	1	10	13	1	23
√ Choteau	2018		-	-	87	-	12	90	87	4	98
√ Fly Creek (SARC)	2017	34	-	-	10	10	3	17		7	33
√ The Knees	2016	65	36	-	46	12	0	24			81
Willow Creek	2012	10	1	2	2	2	1				12
Denton	2010	7	2	2	2	1					25
Geraldine	2008	4	2	1							5