

Project Title: 2019 Intra-State Winter Wheat Variety Trial

Objective: To evaluate the performance of winter wheat varieties in northwestern Montana

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Summary:

The trial was planted under rainfed conditions in 2018 on silt loam soil (but with known subsurface water recharge). The management information is available in Table 1. Only a handful of varieties experienced significant rust infection, including Decade, Brawl, MT 1793 and MT 1796. There was little to no lodging across the entire study, and yields were exceptional due to prolonged cool, wet weather in the spring. The high yields, along with lower-than-normal rates of N fertilization, likely contributed to the low protein levels seen in this study.

The average yield was 124.9 bu/A, with LCS Jet having the highest yield (145.7 bu/A) and SY 517 CL2 having the lowest (93.6 bu/A). LCS Zoom had the lowest test weight (58.0 lb/bu) and SY 517 CL2 had the highest (63.3 lb/bu); the mean test weight was 61.0 lb/bu. Average protein was 8.5%, with ASC 116 having the highest protein at 10.0% and Incline AX had the lowest at 7.4%. Other indicators of agronomic performance are given in Table 2.

Table 1. Management information

Seeding date:	9/27/2018	Field Location:	Y7
Julian date:	270	Harvest date:	8/20 and 8/21
Seeding rate:	25 plt/ft ²	Julian date:	232 and 233
Previous crop:	canola	Soil type:	Silt loam
Herbicide:	5/9: Huskie & Axial	Tillage:	Conventional
Insecticide:	None	Soil residual nutrient (NO ₃ ⁻ , P, K lb/A):	58-28-180
Fungicide:	None	Nutrient fertilizer applied (N, P ₂ O ₅ , K ₂ O lb/A):	10-40-90-20S at seeding 82-0-0 spring topdress

Table 2. Agronomic performance of winter wheat.

Cultivar/Line	Yield bu/A	TWT lb/bu	Protein %	FN sec.	HDDT Julian	Height in.	Rust %	Moisture %	TKW g.
LCS Jet	145.7	58.8	7.5	315	166.4	33.2		11.5	40.2
MTW1491	145.2	60.6	8.1	360	167.8	41.0		12.6	43.2
MT1773	142.2	61.1	8.3	369	164.9	36.9		12.4	43.0
SY Clearstone 2CL	140.2	60.5	7.9	389	166.9	39.5		12.2	45.4
Northern	139.1	61.2	8.5	340	168.9	38.9		12.0	40.8
MT1683	138.7	60.9	8.5	384	165.5	38.1	7	12.1	43.4
MT1564 (Flathead)	136.9	61.3	8.3	373	161.9	36.2		12.0	42.6
MT1642	135.7	62.0	8.3	342	168.1	36.6	tr	12.0	43.5
Keldin	135.4	60.8	8.1	358	166.1	35.0		11.4	44.9
Judee	135.1	62.4	8.5	327	166.6	37.5		11.6	40.8
MT1750	134.8	62.7	8.5	361	166.6	32.8		11.6	38.4
AAC Wildfire	134.4	62.3	8.4	337	170.7	40.1	10	11.3	41.7
MT1782	132.9	62.1	8.6	372	164.8	35.0		11.9	40.8
MTCL1737	132.5	60.5	8.3	334	169.1	33.1		11.9	35.8
Ray	131.4	60.4	8.4	410	171.0	42.9		12.6	43.0
Loma	130.3	61.6	8.7	257	168.0	35.5		12.6	39.4
FourOsix	129.1	60.2	8.0	361	165.1	33.6		11.6	40.9
LCS Zoom	128.5	58.0	8.2	362	164.2	32.9		11.5	37.7
MT1746	128.3	62.3	8.6	401	165.1	35.1		11.4	36.5
MT1764	128.2	60.6	8.8	406	164.3	32.4		11.8	39.2
Yellowstone	127.9	60.7	8.1	395	167.6	37.2		12.1	42.9
Canvas	127.7	61.6	8.3	370	164.8	32.1		11.9	35.5
Byrd CL Plus	126.2	59.5	7.8	344	164.0	37.5		12.2	41.8
Oahe	125.4	60.7	8.6	375	164.2	40.4		12.2	42.8
MT1745	124.4	60.9	7.8	402	166.9	36.9		11.8	43.7
MT1747	123.7	61.9	8.3	385	165.0	33.3		11.8	37.4
MTCL1732	123.3	60.7	8.0	346	168.0	33.8		11.5	41.1
MTCS1601R	122.6	62.4	8.8	413	166.0	36.6		11.8	39.7
Incline AX	122.5	59.1	7.4	330	167.4	34.7	5	12.0	39.7
WB4418	122.2	59.5	8.4	339	162.7	31.0		11.4	33.9
WB4311	121.8	61.8	9.6	381	165.9	30.8		11.9	44.2
MT1793	121.7	60.0	8.8	384	163.1	35.4	17	11.7	36.7
Long Branch	121.1	61.6	8.6	326	158.2	32.0	5	11.5	40.0
SY Monument	121.0	59.8	8.4	362	165.2	34.0	3	11.8	41.3
MT1787	120.7	61.4	8.6	361	168.1	31.8		12.1	39.4

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Cultivar/Line	Yield bu/A	TWT lb/bu	Protein %	FN sec.	HDDT Julian	Height in.	Rust %	Moisture %	TKW g.
MTS1731(w)	119.5	61.4	8.5	356	163.9	32.1	tr	11.6	36.3
SY Legend CL2	119.0	61.2	8.5	402	164.8	32.9		11.9	41.6
ASC107	118.9	62.5	9.6	365	164.8	29.6		11.9	38.4
Warhorse	118.4	60.6	8.6	399	165.6	35.6		12.1	38.1
MTS1588 (Bobcat)	117.6	62.1	8.7	384	168.1	32.7		11.7	38.8
Decade	115.0	59.8	8.4	362	164.9	38.3	33	11.9	36.3
LCS Chrome	113.3	61.0	9.5	402	162.8	35.9	tr	11.9	36.6
WB4269	112.8	61.4	8.8	379	164.9	29.5		11.6	35.5
SY Wolverine	111.3	61.2	8.3	340	160.6	29.8		11.8	37.6
Brawl CL Plus	110.0	61.2	9.3	385	159.4	32.9	18	11.7	38.5
ASC122	110.0	62.0	8.9	356	165.2	29.9		11.3	35.9
MT1796	103.3	60.5	8.8	378	163.5	36.6	38	12.0	36.2
ASC116	100.4	59.6	10.0	472	157.7	33.0		11.7	48.3
SY 517 CL2	93.6	63.3	9.7	435	158.4	31.2		11.8	36.8
Mean	124.9	61.0	8.5	369	165.2	34.8		11.6	39.9
LSD (0.05)	13.0	0.4	0.5	32	1.5	2.2		0.3	1.8
CV%	6.4	0.4	3.1	5	0.5	4.0		1.8	2.9
Pr>F	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001		<.0001	<.0001

TWT: test weight, HDDT: heading date, TKW: thousand kernel weight, FN: falling number, LSD: least significant difference, CV: coefficient of variation

*tr = only trace amounts of rust detected