

Project Title: 2019 Spring Wheat Annual Yield Trial

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

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Summary:

Spring wheat was seeded on April 22, 2019 and managed under dryland conditions (Table 1). The highest-performing variety this year was MT 1868, with an average yield of 63.7 bu/A (Table 2). The lowest-yielding variety was CI13596 at 38.3 bu/A. Overall yield average was 47.8 bu/A. Average protein content was 15.0%, with the highest-yielding variety, MT1868, having the lowest protein (13.5%) and PI 671855 having the highest (17.0%). Average test weight was 60.7 lb/bu and ranged from 58.0 lb/bu (MT1736) to 63.6 lb/bu (WB173). Rust was a significant issue this growing season, with almost every variety showing some symptoms of infection, and a couple of varieties with nearly 1/3 of plants affected (MT1743 and AGRIPR 161). However, the average rate of infection overall was only 7.9%. Due to cool, wet conditions, grain maturation and drying occurred slower and harvest took place slightly later in the season than normal.

Table 1. Management information

Seeding date:	4/22/2019	Field Location:	R4
Julian date:	111	Harvest date:	9/3/19
Seeding rate:	24 plts/ft ²	Julian date:	246
Previous crop:	Alfalfa	Soil type:	Fine sandy loam
Herbicide:	Huskie/Axial: 5/23 Stinger: 6/10	Tillage:	Conventional
Insecticide:	None	Soil residual nutrient (NO ₃ ⁻ , P, K lb/A):	26-6-146
Fungicide:	None	Nutrient fertilizer applied (N, P ₂ O ₅ , K ₂ O lb/A):	84-45-100

Table 2. Agronomic performance of the advanced yield trial spring wheat varieties

Variety	Yield (bu/A)	TWT (lb/bu)	Protein (%)	HDDT (Julian)	Height (in.)	Rust (%)	TKW (g)
MT 1868	63.7	61.3	13.5	172.3	26.1	1.6	40.4
PI 679964	59.6	60.7	13.6	175.0	29.4	13.7	36.9
LIMAGR 192	58.3	61.4	14.6	170.3	25.9	0.0	36.8
MT 1811	57.8	61.5	14.4	173.0	27.9	12.6	37.9
MT 1855	57.2	61.9	14.8	175.7	29.0	8.3	38.5
LIMAGR 171	56.4	62.7	15.0	169.7	29.9	5.2	40.9
MT 1857	55.5	61.7	15.3	173.0	25.8	9.3	36.0
MT 1775	54.8	60.5	14.3	172.3	28.2	3.1	42.0
MT 1870	54.2	61.4	14.6	169.7	26.5	6.5	36.1
AGRIPR 151	54.0	60.5	14.1	169.7	24.6	8.8	31.9
MT 1736	52.4	58.0	14.9	173.7	27.6	6.5	39.9
PI 660981	52.2	60.3	14.7	169.0	27.2	4.7	38.0
MT 1743	51.2	58.6	14.3	172.3	26.3	31.1	30.7
MT 1815	51.2	60.7	14.9	175.7	27.1	7.3	39.1
MT 1621	50.1	60.8	14.9	169.7	25.9	12.2	39.7
WSCIA	50.1	62.1	14.7	171.7	25.5	3.1	41.2
MT 1866	50.1	61.0	14.8	173.7	26.7	4.6	34.7
MT 1750	49.9	61.1	15.0	169.0	26.6	5.3	38.5
PI 574642	49.9	60.5	14.8	175.0	27.3	26.9	38.0
MT 1807	49.9	60.9	15.0	172.3	26.4	12.8	36.3
MT 1846	49.7	61.7	15.1	171.0	26.2	4.4	38.6
MT 1871	49.3	60.4	14.3	172.3	25.8	0.0	36.9
PI 642366	49.0	60.5	14.2	172.0	24.7	5.5	34.7
MT 1865	48.9	59.8	14.5	173.7	26.5	1.9	37.3
SYN 183	48.9	63.1	15.2	171.0	24.8	9.9	34.1
LIMAGR 191	48.4	60.4	14.3	170.3	25.2	8.9	33.6
MT 1861	48.4	61.9	15.2	171.0	25.3	17.2	36.0
MT 1867	48.2	61.1	15.6	172.3	27.6	2.3	35.9
MT 1748	48.2	59.3	14.9	177.0	27.6	12.1	42.9
MT 1853	48.0	62.1	14.8	173.7	26.1	15.0	37.6
MT 1742	47.7	60.2	14.5	169.7	25.0	7.6	35.0
MT 1809	47.5	59.9	15.2	170.7	24.5	7.2	34.0
MT 1872	47.1	60.7	14.4	169.0	24.2	5.1	34.1
MT 1716	47.0	60.0	15.1	170.3	24.5	9.6	29.6
MT 1673	46.9	59.2	16.0	169.7	26.7	4.4	37.0
ND 695	46.7	61.5	14.6	175.0	23.6	3.4	34.0

Table 2. (continued)

Variety	Yield (bu/A)	TWT (lb/bu)	Protein (%)	HDDT (Julian)	Height (in.)	Rust (%)	TKW (g)
MT 1756	46.6	59.2	14.8	170.3	25.9	0.5	44.8
MT 1767	46.5	59.2	14.5	169.0	24.1	5.9	34.8
MT 1826	46.3	58.1	15.5	171.0	24.1	9.2	40.5
PI 676978	46.1	60.9	15.5	171.0	24.3	4.8	37.7
AGRIPR 141	45.8	62.0	16.5	170.3	25.4	3.0	36.0
SYN 182	45.5	62.0	15.3	171.7	25.1	3.6	36.5
SYN 181	45.3	61.9	15.8	169.0	24.7	2.9	38.3
BZ 92413R	45.2	61.6	14.2	169.7	24.1	5.7	43.4
MT 1856	45.2	59.8	15.9	173.7	25.4	8.5	37.7
WB 171	44.4	60.3	15.6	169.0	21.3	9.4	37.4
MT 1862	44.4	60.0	14.9	169.7	22.5	2.6	38.7
AGRIPR 161	44.1	59.0	15.3	175.0	24.2	30.6	36.9
CI 10003	43.9	60.1	14.6	175.7	31.8	10.1	30.7
MT 1821	43.5	62.3	14.8	173.7	26.0	9.0	36.1
BZ 996434	43.5	61.1	14.3	169.0	25.3	6.5	40.3
MT 1840	43.2	62.6	14.3	171.0	25.2	10.7	42.4
MT 1824	43.0	59.2	15.2	170.3	24.9	5.8	35.6
WB 9879 CLP	42.9	59.8	15.4	172.3	25.9	8.2	35.9
PI 671855	42.9	59.9	17.0	173.7	26.4	5.1	36.0
MT 1818	42.7	61.3	16.1	172.3	26.0	2.4	40.3
MT 1838	41.4	59.5	14.7	169.7	24.8	12.7	34.4
MT 1819	41.4	61.0	15.6	172.3	25.6	5.6	34.0
MT 1863	41.3	59.9	15.4	172.3	23.5	9.2	34.5
WB 143	39.3	60.3	16.7	169.7	21.2	6.3	33.3
MT 1837	39.1	60.6	15.4	173.7	24.0	14.4	36.1
WB 173	38.8	63.6	15.3	175.0	23.7	4.2	35.9
PI 633974	38.8	59.8	15.2	173.7	24.2	5.7	33.7
CI 13596	38.3	60.0	15.0	170.3	31.7	7.4	41.6
Mean	47.8	60.7	15.0	171.8	25.8	7.9	37.0
LSD (0.05)	10.5	0.5	0.4	2.6	2.7	15.7	2.7
CV%	12.7	0.5	1.6	0.9	6.2	114.0	4.4
Pr>F	<0.01	<0.001	<0.001	<0.001	<0.001	ns*	<0.001

TWT=test weight, HDDT=heading date, TKW=thousand kernel weight

*ns=not significant