

**Project Title:** 2022 Spring Wheat Preliminary Yield Trial

# MONTANA

wheat & barley

**Objective:** To evaluate spring wheat varieties and experimental lines for agronomic performance in environments and cropping systems representative of northwestern Montana

**Personnel:** Clint Beiermann, Jason Cook, Hwa-Young Heo, Jessica Pavelka

## Summary:

One hundred and twenty-one spring wheat lines were planted on April 27<sup>th</sup>, 2022 and managed under rainfed conditions (Table 1). A total of 8.9 inches of rainfall was received during the growing period (April-September).

Average spring wheat yield was 79.1 bu/A and ranged from 98.6 bu/A for MT 21272 to 59.1 bu/A for MT 21359. The protein content averaged 10.5% for the study. The highest protein content was 11.8% for MT 21439, while the lowest was 9.3% for MT 21286. The average heading date was 185 julian days, with the earliest at 181 for MT 21215 to the latest at 188 for MT 21288. The average test weight was 63.6 lb/bu, with the highest at 65.2 lb/bu from MT 21297 and the lowest at 62.0 lb/bu from MT 21430.

**Table 1.** Management information

<b>Seeding date:</b> 4/27/2022	<b>Field Location:</b> Y8
<b>Julian date:</b> 117	<b>Harvest date:</b> 9/7/2022
<b>Seeding rate:</b> NA	<b>Julian date:</b> 250
<b>Previous crop:</b> Canola	<b>Soil type:</b> Creston Silt Loam
<b>Herbicide:</b> MCPA+bromoxynil+fluroxypyr+pinoxadin	<b>Tillage:</b> Conventional
<b>Insecticide:</b> None	<b>Soil residual nutrient (NO<sub>3</sub><sup>-1</sup>, P, K lb/A):</b> 71-40-342
<b>Fungicide:</b> None	<b>Nutrient fertilizer applied (N, P<sub>2</sub>O<sub>5</sub>, K<sub>2</sub>O lb/A):</b> 80-20-25-10s

**Table 2.** Agronomic performance of spring wheat

Variety/Line	HD (julian)	YLD (bu/A)	TWT (lb/bu)	PRO (%)	TKW (g)
MT 21272	187.1	<b>98.6</b>	63.6	9.4	39.5
MT 21280	186.0	<b>95.9</b>	63.5	10.4	42.3
MT 21124	186.8	<b>95.3</b>	64.0	11.0	40.8
MT 21186	184.9	<b>95.1</b>	62.6	11.2	40.4
MT 21183	186.9	<b>94.5</b>	62.6	10.5	37.0
MT 21178	185.4	<b>94.2</b>	63.8	10.1	38.3
MT 21214	185.0	<b>94.0</b>	63.9	10.4	36.5
MT 21247	184.2	<b>93.0</b>	62.7	11.1	41.4
MT 21320	185.5	<b>92.4</b>	63.5	11.2	43.4
MT 21337	186.9	<b>90.5</b>	64.6	11.3	39.8
DAGMAR	183.5	<b>89.8</b>	63.9	10.8	42.6
MT 21224	184.3	<b>89.8</b>	64.5	10.6	38.7
MT 21148	186.5	<b>89.8</b>	64.3	10.6	36.6
MT 21218	186.6	<b>89.5</b>	64.2	10.3	35.7
MT 21230	186.3	<b>89.4</b>	64.2	10.2	43.0
MT 21176	184.5	88.1	63.5	9.9	35.9
MT 21366	<b>183.1</b>	88.1	63.5	10.3	42.8
MT 21127	184.9	87.9	63.6	10.9	36.1
MT 21345	186.6	87.2	63.9	10.6	46.6
CHOTEAU	187.2	86.5	63.8	10.6	37.2
MT 21262	185.2	86.3	63.6	10.9	35.9
MT 21455	185.0	86.3	64.5	10.7	41.5
MT 21196	187.2	86.0	62.8	10.8	41.1
MT 21121	185.2	85.6	63.3	10.4	39.1
MT 21212	187.6	85.6	63.9	10.3	43.0
REEDER	186.0	85.4	63.5	11.2	40.2
MT 21149	185.4	85.4	62.9	11.1	41.9
MT 21305	184.3	85.1	63.7	10.6	39.4
MT 21429	187.3	84.6	64.1	10.6	34.3
MT 21173	184.7	84.3	63.8	9.9	39.9
MT 21352	183.6	83.9	64.1	10.1	44.5
MT 21150	187.1	83.9	64.1	9.9	33.0
MT 21147	186.1	83.8	63.0	11.1	39.0
MT 21250	<b>182.7</b>	83.5	63.9	10.3	39.3
MT 21215	<b>181.4</b>	83.2	63.4	9.8	34.7
MT 21184	185.0	83.0	63.2	10.9	39.2
MT 21380	185.9	82.9	64.1	10.6	35.1
MT 21171	186.1	82.9	63.7	10.9	36.1
MT 21384	184.3	82.9	63.1	9.8	40.9
MT 21401	185.7	82.6	63.6	10.3	39.1
MT 21460	186.8	82.6	62.7	10.6	40.1
MT 21485	184.1	82.4	63.5	10.4	38.9
MT 21234	185.1	82.3	64.8	11.2	38.1
MT 21450	186.3	82.2	64.3	10.0	40.8

Table 2. continued

Variety/Line	HD (julian)	YLD (bu/A)	TWT (lb/bu)	PRO (%)	TKW (g)
MT 21229	186.9	81.6	64.2	10.8	38.6
MT 21210	184.2	81.5	<b>65.1</b>	10.7	38.9
MT 21325	184.4	81.5	<b>65.1</b>	10.3	42.7
MT 21174	184.5	81.3	63.7	11.1	40.0
MT 21235	185.6	81.3	64.9	<b>11.5</b>	43.3
MT 21152	187.5	81.3	63.0	9.7	40.0
MT 21306	183.5	81.2	64.2	10.7	41.4
MT 21387	186.7	81.2	64.0	9.7	37.4
MT 21432	184.6	81.1	63.4	<b>11.7</b>	38.2
MT 21161	187.2	80.9	64.6	11.0	38.0
MT 21261	186.1	80.9	64.5	10.0	37.5
MT 21342	185.8	80.4	62.7	10.4	<b>47.1</b>
MT 21120	186.2	80.2	63.5	10.4	39.0
MT 21439	<b>183.0</b>	79.9	63.5	<b>11.8</b>	40.0
MT 21270	185.3	79.8	63.3	11.0	42.3
MT 21375	185.9	78.8	63.1	10.8	39.8
MT 21456	187.0	78.8	63.2	10.3	36.4
MT 21371	186.2	78.4	63.6	9.5	42.9
MT 21479	<b>183.0</b>	78.4	64.0	10.8	40.5
MT 21286	185.8	78.0	64.3	9.3	33.6
MT 21266	185.6	77.9	63.7	10.4	38.5
MT 21301	184.8	77.8	<b>65.1</b>	10.6	41.6
MT 21232	<b>182.7</b>	77.7	62.3	10.5	44.9
MT 21297	187.0	77.7	<b>65.2</b>	<b>11.4</b>	41.6
MT 21282	184.0	77.6	64.8	10.8	37.6
MT 21459	<b>183.2</b>	77.4	63.5	10.9	40.4
MT 21143	186.8	77.2	64.4	10.2	37.1
MT 21275	186.7	77.1	63.5	10.6	37.0
MT 21487	184.7	77.0	64.8	10.3	39.2
MT 21170	186.8	76.9	63.2	11.2	41.4
MT 21430	186.0	76.9	62.0	10.6	35.0
MT 21476	184.6	76.2	62.7	<b>11.5</b>	45.8
MT 21220	183.7	76.0	64.0	9.5	33.8
MT 21346	184.5	76.0	62.7	10.0	41.0
MT 21242	185.0	75.7	64.1	11.2	38.8
MT 21309	185.0	75.7	64.7	10.3	33.7
MT 21222	185.8	75.6	63.7	9.9	33.5
MT 21466	185.2	75.4	63.5	10.7	39.1
MT 21480	184.3	75.3	63.9	10.5	40.3
MT 21284	184.4	75.2	64.4	9.9	33.8
MT 21323	186.2	74.8	63.7	<b>11.4</b>	40.0
MT 21458	186.7	74.8	62.4	10.5	37.2
MT 21211	186.1	74.7	64.3	10.4	39.4
MT 21335	185.5	74.0	63.4	10.2	39.1

Table 2. continued					
Variety/Line	HD (julian)	YLD (bu/A)	TWT (lb/bu)	PRO (%)	TKW (g)
MT 21314	<b>183.3</b>	73.8	62.6	10.5	44.7
MT 21473	184.5	73.5	62.4	10.3	37.6
MT 21313	184.3	73.4	62.6	10.1	40.7
MT 21239	185.1	73.1	64.5	<b>11.4</b>	42.6
VIDA	186.5	73.0	63.4	10.1	39.8
MT 21356	<b>182.8</b>	72.8	63.3	<b>11.8</b>	38.7
MT 21373	184.1	72.8	63.0	<b>11.4</b>	39.0
MT 21425	184.0	72.7	62.3	10.0	39.7
MT 21257	186.6	72.3	64.3	10.8	38.8
MT 21304	185.0	71.9	64.7	11.0	38.8
MT 21263	186.7	71.8	64.3	10.1	38.6
MCNEAL	186.4	71.3	63.1	10.0	39.1
MT 21180	184.3	71.3	62.7	10.3	38.7
MT 21269	186.6	71.1	62.9	<b>11.4</b>	40.0
MT 21288	188.3	71.0	64.3	9.4	33.8
MT 21472	185.6	71.0	62.9	11.0	37.0
MT 21354	184.7	70.4	62.3	10.2	<b>48.0</b>
MT 21241	185.6	70.3	64.1	10.2	36.1
MT 21125	183.6	70.1	63.1	10.1	33.0
MT 21484	184.7	69.5	64.5	10.2	41.3
MT 21415	185.2	69.4	62.8	9.8	34.7
MT 21157	185.7	69.2	<b>65.0</b>	11.0	39.0
MT 21467	185.8	69.1	63.4	10.4	38.1
MT 21160	185.8	68.2	63.4	10.0	39.7
MT 21395	187.5	66.9	63.0	10.4	33.2
MT 21298	184.4	66.6	64.1	10.1	39.6
MT 21470	186.0	65.7	63.5	10.3	43.7
MT 21490	<b>182.3</b>	64.7	62.7	10.7	38.4
MT 21478	187.4	64.6	63.3	<b>11.5</b>	41.3
MT 21341	184.3	63.0	63.4	9.5	40.0
MT 21324	186.9	61.7	63.9	10.6	39.6
MT 21362	184.3	60.4	62.2	10.5	41.5
MT 21359	184.7	59.1	62.2	10.8	42.6
Mean	<b>185.4</b>	<b>79.1</b>	<b>63.6</b>	<b>10.5</b>	<b>39.3</b>
C.V.	<b>0.5</b>	<b>5.7</b>	<b>0.3</b>	<b>2.4</b>	<b>1.5</b>
LSD(0.05)	<b>2.0</b>	<b>9.5</b>	<b>0.3</b>	<b>0.5</b>	<b>1.2</b>
PR>F	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>

**Bold** = highest value in column; **Bolding** denotes equal value to highest or earliest value within a column based on LSD(0.05)

HD = heading date, HT = height, LOD = lodging, YLD = yield, PRO = protein, TWT = test weight, TKW = thousand kernel weight