

Project Title: Evaluation of Winter Wheat Cultivars for Agronomic Performance

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Objectives: To evaluate winter wheat varieties and experimental lines for agronomic performance and disease resistance in environments and cropping systems representative of northwestern Montana.

#### Materials and Methods:

The previous crop was peas. A preplant application of 30-30-60 was applied on September 22, 2010. Treatments were seeded 1.5 inches deep on September 28 at a rate of 80 lb/A. Individual plots consisted of seven, 6-inch wide rows, 15 feet in length, with each entry replicated 3 times in a randomized complete block design. A topdress application of nitrogen was applied at 110-0-0 lb/A on May 13, 2011. Heading was recorded when 50 percent of the plants in a plot had half the head exposed. Height measurements were recorded near maturity. The study was harvested August 22. Grain yield, test weight, moisture, and grain protein were then determined.

#### Results:

The average Julian heading date for the nursery was 176 (June 25). BZ9WM07-1516 and MTS0826 had the earliest (169) and latest (182) heading dates, respectively. Plant heights averaged 36 inches, with Carter being the shortest (28.3) and MTW08168 the tallest (43.7). Lodging was minor, but exceeded 25% for Rampart, Judee and Curlew. Stripe rust was found in the nursery on May 8 and had infected every variety by the end of the season. The average stripe rust infection level was 62.7 percent, with BZ9WM07-1516 being the most susceptible (99%) and Promontory the most resistant (10.7) percent. Stripe rust had a negative impact on grain yield and quality. Yields averaged 66 Bu/A and ranged from a high of 125 Bu/A for Promontory to a low of 12.4 Bu/A for Wahoo. Test weights averaged 57 lb/Bu, and ranged from 46.2 for Wahoo to 62.7 for Promontory and Peregrine. Protein content averaged 12.6% for the nursery. Protein levels were highest for Wahoo (14.8%) and lowest for Accipiter (10.8%).

#### Summary:

Promontory, Curlew, Yellowstone and Judee displayed high levels of resistance to stripe rust and were among the highest yielding varieties.

Table 1. Agronomic data from the intrastate winter wheat nursery grown at Kalispell, MT. 2011.

Cultivar	Yield (bu/A)	Protein (%)	Test wt. (lb/bu)	Stripe rust (%)	Heading (Julian)	Height (inches)	Lodging (%)
Promontory	125.7	11.1	62.7	10.7	173.0	37.7	11.7
MT08172	120.6	12.0	59.8	32.7	177.3	39.9	0.0
MTW08168	117.0	11.7	57.8	24.3	180.0	43.7	0.0
MTS0808	113.4	13.2	61.3	25.0	176.0	38.5	3.3
Curlew	112.9	13.1	61.3	21.0	177.0	40.6	25.0
MT08146	110.1	12.1	57.6	31.0	176.7	37.1	0.0
MT0990	109.4	11.1	59.7	53.3	178.7	35.2	3.3
Yellowstone	108.4	11.1	60.1	45.0	177.3	38.6	0.0
Judee	106.4	12.2	61.0	31.7	174.7	37.0	25.7
MT08189	106.0	11.4	59.4	39.3	178.7	39.1	3.3
MT0978	102.5	12.6	57.2	58.3	177.7	37.0	16.7
AP 503 CL2	100.1	13.2	62.1	25.0	172.7	33.3	15.0
BZ9W05-2043	97.9	12.5	60.7	30.0	179.0	38.7	3.3
Radiant	96.5	11.7	56.7	20.0	180.7	40.8	0.0
MT0871	91.3	12.4	57.9	56.7	177.0	37.4	1.7
MTCL1067	90.8	12.1	58.4	48.3	176.3	39.8	6.0
SY Wolf	81.0	12.8	60.4	48.3	173.0	36.0	0.0
MTS0819	79.0	12.9	54.9	51.7	178.3	34.6	0.0
Peregrine	78.3	12.2	62.7	65.0	178.3	42.3	1.7
Bynum (CL)	78.0	13.1	62.5	53.3	173.3	40.3	11.0
MTCL1068	71.8	11.7	56.8	60.0	175.3	38.7	0.0
Robidoux	70.8	11.7	56.6	75.0	171.0	35.0	11.7
Jagalene	69.6	12.0	59.9	55.0	173.0	34.1	1.7
MTS0826	69.0	14.1	58.9	50.0	182.7	35.7	0.0
Rampart	67.3	13.1	62.4	78.3	175.0	39.1	28.3
Hyalite (CL)	67.1	12.5	56.8	63.3	173.0	39.2	8.3
Art	61.0	13.3	53.8	70.0	170.0	35.7	0.0
Boomer	57.9	11.7	56.2	73.3	178.7	36.0	0.0
Pryor	54.8	12.4	61.0	73.3	180.3	30.7	0.0
CDC Falcon	54.6	11.5	59.8	80.0	173.3	32.8	0.0
Accipiter	54.3	10.8	61.3	78.3	180.3	33.6	0.0
McGill	53.8	12.2	52.2	88.3	171.3	33.5	4.0
Ledger	49.2	11.6	57.2	83.3	174.0	34.0	0.0
MTCL1003	40.6	12.8	53.8	68.3	177.7	36.4	0.0
Norris (CL)	40.1	12.9	53.1	89.7	173.7	36.9	0.0
Overland	35.0	12.5	53.1	93.3	174.0	35.4	0.0
Bearpaw	34.6	13.9	50.9	90.0	173.7	35.8	1.7
Settler CL	33.3	12.8	52.6	85.0	173.3	33.7	0.0
WB-Matlock	31.9	13.4	57.6	80.0	178.7	34.3	0.0
MT0866	30.1	14.1	54.9	81.7	178.3	34.8	0.0
Broadview	27.3	12.3	58.4	86.3	179.7	31.6	0.0
Genou	26.9	13.2	56.8	83.3	178.3	36.0	0.0

Table 1. (continued)

Cultivar	Yield (bu/A)	Protein (%)	Test wt. (lb/bu)	Stripe rust (%)	Heading (Julian)	Height (inches)	Lodging (%)
Jerry	26.9	12.0	52.7	83.3	179.7	37.5	0.0
BZ9WM07-1516	21.3	14.1	49.2	99.0	169.3	32.2	0.0
Carter	19.4	14.3	57.2	97.7	178.0	28.3	0.0
Decade	15.3	14.5	47.3	92.3	175.0	32.3	0.0
MT0954	13.9	14.0	52.3	86.7	180.0	34.4	0.0
MTS0832	12.6	14.7	55.0	94.7	180.0	35.4	0.0
Wahoo	12.4	14.8	46.2	97.7	174.0	31.4	0.0
MIN	12.4	10.8	46.2	10.7	169.3	28.3	0.0
MAX	125.7	14.8	62.7	99.0	182.7	43.7	28.3
MEAN	66.3	12.6	57.1	62.7	176.3	36.2	3.7
LSD (0.05)	13.8	NA	NA	13.2	2.0	3.4	10.6
CV	12.88	NA	NA	12.80	0.68	5.84	176.03
TRT (pr>f)	0.0001	NA	NA	0.0001	0.0001	0.0001	0.0001