

Project Title: Agronomic Performance Evaluation of Intrastate Winter Wheat Cultivars

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Objectives:

To evaluate new and existing winter wheat cultivars for agronomic performance and disease resistance in environments and cropping systems representative of northwestern Montana.

Results:

A mild winter helped to maintain excellent wheat stands into the spring. Although snow pack was lower than normal, soil moisture was still adequate for tillering in spring. In addition, exceptional high precipitation (8 in) during June resulted in high yield potential. Unfortunately, the wet conditions also provided ideal conditions for stripe rust infestation. Overall, resistance to this disease largely determined yield. Yields ranged from 130 bu/ac for Promontory to 12 bu/ac for Paul. Stripe rust not only affected yield but also reduced grain test weight. Test weight ranged from 64.5 lb/bu in MT001148 to 39.4 lb/bu in NuWest. Julian heading date averaged 155, ranging from 150 to 164. Plant height was taller than normal and averaged 40 inches. Although precipitation was high in June, most entries did not lodging. Only a few entries (Rampart, Vanguard, MTS0333 and Rocky) had over 40% lodging. Grain protein ranged from 10.6% to 14.3% and averaged 12.2%.

Summary:

The 2004-05 season was ideal for evaluating stripe rust resistance. The top yielding entries (Promontory, MT03177, MT9982-65, MT00159 and WA7936) showed excellent resistance to stripe rust. However, some entries (MT02136, MTW01133 and Paul) were very susceptible to stripe rust and resulted in very low yield and test weight.

Future Plans:

Continue winter wheat evaluations for the purpose of identifying those cultivars best suited for production in northwestern Montana.

Table 1. Agronomic data from the Intrastate Winter Wheat Nursery Grown at the Northwestern Agricultural Research Center, Kalispell MT in 2004-05 season.

Planted: September 27, 2004

Harvested: August 10, 2005

Entry	Cultivar	Yield bu/ac	Test weight lb/bu	Grain moisture %	Heading date Julian	Plant height in	Lodging %	Stripe rust		Protein %
								6/9/05 %	6/23/05 %	
10	Promontory	130.7	61.6	10.8	155.0	38.1	0.0	0.0	3.0	11.1
49	MT03177	126.6	62.4	11.2	152.0	41.9	0.0	0.0	3.3	10.7
39	MT9982-65	126.3	61.7	11.1	155.0	39.2	0.0	0.0	6.7	11.7
29	MT00159	126.0	61.9	12.5	155.3	38.8	0.0	0.0	5.0	11.6
33	WA7936 (HWW)	126.0	55.6	24.6	164.3	39.4	1.7	0.7	4.0	11.4
38	MT9982-53	122.9	62.7	11.3	156.7	40.0	0.0	0.0	5.7	11.9
28	MT0097	122.7	63.6	12.5	154.7	40.2	6.7	0.0	3.3	11.5
31	MT01148	122.5	64.5	12.4	157.0	43.6	0.0	0.0	8.3	11.3
22	Jagalene	121.8	62.8	12.2	153.0	39.4	0.0	0.0	3.3	12.4
48	MT03176	113.5	61.3	12.0	150.7	40.8	5.0	0.7	5.0	11.6
46	MTS0360	110.5	63.2	11.3	157.3	40.3	6.7	0.0	8.3	13.4
12	NuFrontier (HWW)	109.6	64.3	11.5	150.7	40.2	0.0	0.0	8.3	10.6
44	MTCL0318 (IMI)	108.0	64.2	10.8	152.3	44.2	30.0	0.0	5.0	13.0
14	Quantum 542	105.8	60.1	10.4	152.3	43.2	3.3	0.0	5.7	13.6
32	WA7939	104.8	56.0	19.6	162.7	39.1	26.7	4.3	10.0	11.3
41	Hatcher	99.0	59.4	11.0	151.0	37.3	0.0	0.0	50.0	11.8
7	Bighorn	95.2	59.2	10.0	155.3	36.9	10.0	0.0	0.7	11.2
1	Rampart	93.4	63.8	10.6	155.3	41.5	63.3	0.0	6.7	12.6
20	BZ9W96-788	90.1	.	10.8	152.3	38.6	0.0	0.0	10.0	.
4	Vanguard	90.0	62.3	12.3	153.0	45.1	40.0	0.0	13.3	12.0
18	NuHorizon (HWW)	89.4	63.2	12.1	150.3	33.2	0.0	0.7	11.3	10.6
26	Millenium	85.8	60.9	11.9	153.0	43.7	0.0	0.0	20.0	11.4
34	MTCL01159 (IMI)	85.4	59.7	11.5	154.7	41.3	0.0	0.0	5.0	11.8
43	MTCL0316 (IMI)	81.6	59.1	10.8	150.3	41.2	0.0	0.0	30.0	12.9
24	Jerry	81.3	56.7	10.5	155.0	44.9	15.0	0.7	11.7	12.8
3	Tiber	74.9	54.1	10.3	156.7	46.7	26.7	8.3	70.0	12.2
45	MTS0333	72.0	59.1	11.9	155.7	40.3	66.7	0.0	25.0	13.7
8	CDC Falcon	70.0	54.3	10.7	154.3	34.3	0.0	6.7	63.3	11.5
23	Wahoo	68.7	48.7	10.5	151.3	37.3	0.0	1.0	11.7	12.8
27	Genou	68.4	55.5	11.0	155.3	42.4	1.7	1.7	46.7	12.7
21	BZ9W02-2060	68.1	61.0	12.2	153.0	34.6	0.0	6.7	40.0	12.1
6	Rocky	65.9	61.8	11.8	154.3	44.0	60.0	5.7	60.0	12.8
42	MTCL0306 (IMI)	65.4	53.6	10.5	153.0	40.3	0.0	2.3	63.3	12.3
19	GM10006 (HWW)	59.6	54.9	11.0	152.3	31.2	0.0	10.0	75.0	12.3
40	Bond CL (IMI)	59.4	53.7	11.5	150.0	42.0	0.0	26.7	95.0	11.7

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Table 1 (continued). Agronomic data from the Intrastate Winter Wheat Nursery Grown at the Northwestern Agricultural Research Center, Kalispell MT in 2003-04 season.

Planted: September 27, 2004
Harvested: August 10, 2005

Entry	Cultivar	Yield bu/ac	Test weight lb/bu	Grain moisture %	Heading date Julian	Plant height in	Lodging %	Stripe rust		Protein %
								6/9/05 %	6/23/05 %	
25	Above (IMI)	57.7	52.5	9.3	150.0	37.3	0.0	3.3	56.7	12.3
13	Pryor	54.7	49.7	10.4	156.0	31.2	0.0	45.0	63.3	12.3
47	MT0383	46.3	53.7	10.8	155.0	37.4	0.0	11.7	76.7	12.6
35	MT02113	45.2	47.7	10.3	154.7	37.9	0.0	5.0	60.0	13.3
11	BigSky	40.5	47.1	8.9	155.7	44.6	0.0	15.0	85.0	13.1
15	Norstar	37.2	52.1	9.0	162.0	52.9	16.7	10.0	88.3	12.5
37	MTW02111(HWW)	36.2	50.4	10.5	160.0	41.1	0.0	15.0	71.7	12.3
5	Morgan	34.4	48.7	10.4	159.0	40.3	0.0	11.7	78.3	12.9
2	Neeley	27.4	43.8	9.3	158.3	42.3	0.0	81.7	93.3	12.7
16	NuSky (HWW)	25.3	42.8	9.2	157.7	41.7	0.0	11.7	70.0	12.1
9	NuWest (HWW)	24.5	39.4	9.0	155.7	42.8	0.0	6.0	66.7	13.2
36	MT02136	23.1	42.5	9.8	153.0	37.9	8.3	11.7	76.7	14.3
30	MTW01133	22.0	42.1	8.9	152.3	32.0	0.0	13.3	83.3	12.5
17	Paul	12.1	43.6	10.1	157.7	36.5	0.0	66.7	95.0	14.3
Mean		74.9	55.5	11.3	154.8	40.0	8.4	827.6	859.0	12.3
c.v. (%)		10.86			0.78	6.05	152.55	69.56	25.03	
LSD (0.05)		13.74			1.95	3.92	19.59	8.83	15.39	

IMI: Herbicide resistant winter wheat;
HWW: Hard white winter wheat.