

Project Title: Agronomic Performance Evaluation of Intrastate Winter Wheat Cultivars

Project Leader: Bob Stougaard

Project Personnel: Phil Bruckner, Jim Berg, Qingwu Xue, and Fernando Guillen

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:

Although temperature was lower than long-term average during the winter months (Nov.-Jan.), winterkill was minimal and was not recorded. During early spring, symptoms of snow mold (yellow leaves and slow growth) were observed in some plots; however, the symptoms were disappeared at later growing season and seemed not affect yield. The disease infection was moderate in this season. Stripe rust was minimal (<4%) in 60% of the entries. However, there were 15 entries had stripe rust ranged from 11% (Norstar) to 46% (BigSky). TCK infection was also occurred in 29 entries. Yield ranged from 81 to 138 Bu/A, with an average of 110 Bu/A. Eight cultivars yielded over 120 Bu/A. Grain test weight ranged from 57 (Paul and WA7939) to 64 Lb/Bu (Promontory) and averaged 61 Lb/Bu. Heading date was earlier than normal and ranged from Julian 149 to 161. Plant height was taller than normal and average 43 inches. As a result, lodging occurred in some entries and was as high as 59% in Paul. Grain protein ranged from 11% to 14% and averaged 13%.

Summary:

The 2003-04 was an ideal season to evaluate disease resistance in winter wheat entries. The entries with top yield had excellent disease resistance. However, the yield range among entries was greater than normal as a result of disease infection and lodging.

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 2003-04 season.

Planted: September 18, 2003

Harvested: August 11, 2004

Entry #	Cultivar/Line	Yield bu/ac	Test weight lb/bu	Heading date Julian	Plant height in	Lodge index %	Stripe rust %	TCK 0-1	Moisture %	Protein %
30	MT00159	137.8**	61.3	155.7	42.9	-1.4	2.0	0.0	10.6	12.3
45	MT9982-53	132.4*	61.8	155.7	44.2	4.1	1.2	0.0	11.2	13.0
17	NuHorizon (HWW)	127.3*	63.0	150.0	36.7	-7.1	0.3	0.0	10.6	12.2
46	MT9982-65	126.0*	61.2	155.7	41.1	-2.4	-0.1	0.3	10.6	12.5
7	Bighorn	124.1*	61.8	154.6	39.7	22.6	0.0	0.0	10.8	12.4
11	Promontory	123.4*	64.1	154.1	41.9	5.4	-1.1	0.0	12.2	12.0
21	BZ9W96-788	122.5*	61.4	151.1	39.8	-0.9	2.0	0.7	10.8	12.5
16	NuFrontier (HWW)	121.1*	62.4	151.0	40.3	4.8	0.9	0.3	10.6	11.8
29	MT0097	120.4	59.6	156.2	43.9	56.8	-0.2	0.7	10.4	12.9
25	Expedition	119.9	62.0	149.7	40.9	-4.0	3.9	0.7	10.8	13.5
8	Quantum 542	119.5	61.8	152.4	46.6	12.0	-0.3	1.0	10.8	12.9
36	WA7936 (HWW)	119.3	59.1	161.0	40.1	20.2	-0.4	0.0	10.6	12.9
20	Pryor	119.3	60.8	155.0	38.3	-0.4	19.9	0.7	10.2	11.9
40	MT0245	118.1	61.8	153.6	41.5	21.2	0.3	0.3	10.8	13.5
14	CDC Falcon	117.9	60.6	155.4	39.0	-2.5	7.6	0.7	10.4	12.3
35	WA7939	117.6	57.2	160.2	41.4	6.5	-0.2	0.0	9.6	12.7
4	Rocky	116.7	62.2	153.3	46.4	1.8	-0.4	0.7	11.8	12.7
48	Judith	115.5	61.4	153.4	44.4	4.8	2.4	0.3	10.8	12.5
18	Golden Spike (HWW)	113.6	61.6	157.5	44.1	35.4	-0.3	0.0	9.8	11.2
22	Jagalene	113.6	63.1	148.9	39.4	5.9	-0.7	0.0	10.4	13.8
23	Wahoo	113.0	60.6	149.5	40.5	6.5	1.1	0.7	11.8	12.6
27	Millenium	112.8	61.4	152.4	42.7	1.4	0.5	0.7	11.0	13.0
41	MT0277	112.7	61.3	151.3	41.1	17.4	0.2	0.0	10.8	13.0
2	Neeley	112.1	62.1	155.8	43.1	1.7	27.6	1.0	10.6	12.2
44	MTW02115 (HWW)	110.4	61.9	154.4	44.5	26.9	7.7	0.7	11.0	12.9
33	MT01148	109.9	61.7	156.6	43.8	58.1	-0.5	0.0	10.6	12.9
32	MTW01143	109.6	60.3	156.7	43.6	41.8	-1.0	0.0	10.6	12.4
28	Genou (MTS0031)	109.2	61.1	155.0	42.2	5.4	11.4	0.0	12.2	13.0
3	Tiber	108.5	62.2	156.1	46.7	-0.1	6.4	0.0	10.6	12.6
38	MT02113	108.5	60.4	154.5	40.7	-3.1	30.3	0.0	10.8	13.5
47	MTS0023-58	108.1	59.0	159.5	44.7	19.0	0.3	0.3	9.8	13.6
42	MTS0222	107.8	60.7	152.6	40.0	3.1	1.0	0.0	10.4	14.3
39	MT02136	107.5	58.9	151.5	41.2	34.6	26.7	0.3	10.2	12.1
26	Above (IMI)	107.2	62.1	148.8	39.9	-2.2	14.3	0.3	10.8	12.6
24	Jerry	107.1	59.9	154.3	48.1	29.3	-0.2	0.3	11.5	13.0

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

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Harvested: August 11, 2004

Entry #	Cultivar/Line	Yield bu/ac	Test weight lb/bu	Heading date Julian	Plant height in	Lodge index %	Stripe rust %	TCK 0-1	Moisture %	Protein %
5	Vanguard	105.3	61.2	154.0	43.7	2.6	3.8	1.0	11.0	13.7
19	GM10004 (HWW)	104.7	61.3	153.2	44.7	2.9	41.6	0.0	10.6	11.7
6	Morgan	103.3	60.2	156.1	43.3	24.7	0.9	0.7	10.2	12.6
1	Rampart	103.3	60.6	154.8	43.3	1.2	-0.5	1.0	10.6	13.9
12	BigSky	102.4	62.4	155.1	48.4	5.4	45.9	0.3	11.0	12.7
31	MTW01133	102.0	58.7	150.0	35.5	0.1	30.8	1.0	10.0	12.6
34	MT0177	100.4	61.4	154.7	44.1	14.2	35.4	0.7	11.2	12.5
43	MTW02111 (HWW)	95.0	59.7	159.4	42.4	4.3	35.0	0.0	11.0	11.6
49	Elkhorn	92.2	60.9	156.8	48.0	19.4	6.0	0.7	10.6	13.0
10	Norstar	89.9	61.8	161.3	52.1	40.9	13.6	0.7	11.4	13.4
13	NuSky (HWW)	89.6	59.8	156.2	42.0	27.1	29.4	0.3	10.4	12.5
37	MTCL01159 (IMI)	87.4	59.3	154.1	38.0	8.5	1.0	0.0	10.2	12.7
15	Paul	86.9	57.3	155.0	40.7	58.8	23.5	0.3	9.8	13.3
9	NuWest (HWW)	81.1	60.3	155.3	42.9	7.6	33.0	1.0	10.2	12.4
Average		110.5	61.0	154.5	42.5	13.1	9.4	0.4	10.7	12.7
LSD (0.05)		17.3		1.8	2.4	30.3	28.5	0.7		
C.V. (%)		9.2		0.7	3.3	134.6	184.4	108.8		
P-value (Varieties)		<.0001		<.0001	<.0001	0.0021	0.0103	0.0002		

** = indicates highest value within a column

* = indicates varieties with values equal to highest variety within a column based on Fisher's protected LSD (p=0.05)