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:

Winter wheat had only reached the 1.5 leaf stage when cold temperatures occurred, which resulted in some winter-kill in the 2002-03 winter wheat growing season. The winter survival in most entries was in the range of 80-90% except Rampart with 78%. Disease symptoms were minimal and no disease evaluations were recorded. Grain yield ranged from 43 (Jerry) to 70 Bu/A (MT00159), with an average of 57Bu/A. Less tillers and a short grain filling contributed to this response. Grain test weight was good in all entries with an average of 62 Lb/Bu, and only one entry (Pryer) was lower than 60 Lb/Bu. Heading date was about one week earlier as compared to normal due to low precipitation in May and June. The average heading date was 154 and ranged from 150 to 159. Plant height was also lower than normal with an average of 26 inches. However, the grain protein was higher due to dry conditions during grain filling. The average protein content was 13.3%. Three entries (Golden Spike, Gary and NuFrontier) had very low protein (11.5-12.1%), while other three entries (MTW01146, MTI01158 and Erhardt) had very high protein content (>14.5%).

Summary:

Winter-kill, fewer tillers and dry conditions during grain filling resulted in lower than average yields in the 2002-03 season. However, entries had good test weight and high protein in this season. MT00159, Pryer, Elkhorn, Wahoo, MT0097 and Neeley were among the higher yield entries (>64.6 Bu/A) this season.

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 2002-03 season.

Planted: September 27, 2002 Harvested: July 29, 2003

Entry	Cultivar	Yield	Test weight	Grain moist	Heading date	Plant height	Winter survival	Protein
		Bu/A	Lb/Bu	%	Julian	in	%	%
31	MT00159	70.3	61.7	9.7	155.0	25.5	90.0	12.9
23	Pryor	66.0	59.3	9.1	157.0	26.0	90.0	13.0
12	Elkhorn	65.7	60.3	9.2	157.7	34.5	88.3	13.8
33	Wahoo	64.8	60.6	9.3	151.3	24.7	90.0	13.3
30	MT0097	64.6	61.5	9.6	152.7	25.5	88.3	12.9
1	Neeley	64.6	61.7	10.0	156.0	29.4	90.0	13.5
18	Golden Spike (HWW)	64.3	62.0	9.8	157.0	25.6	88.3	11.7
21	Gary (HWW)	64.2	61.1	10.3	153.3	28.3	86.7	11.5
10	Norstar	63.9	60.9	10.3	159.0	35.2	90.0	13.1
28	MT9989	62.4	60.6	9.8	154.0	25.1	88.3	13.0
25	Jagalene	62.0	64.2	10.2	150.3	23.4	90.0	13.9
14	NuSky (HWW)	61.7	62.6	10.4	156.3	28.1	88.3	12.6
41	MT0177	61.0	61.6	9.9	152.3	25.1	90.0	13.0
9	NuWest (HWW)	60.9	61.1	9.5	154.7	26.2	86.7	12.3
4	Rocky	60.8	63.0	10.0	152.3	27.2	90.0	13.1
5	Vanguard	60.7	61.9	9.4	152.0	28.0	88.3	13.4
24	BZ9W96-788	60.5	63.2	9.8	151.0	23.2	88.3	13.9
29	MTR9997	59.4	62.0	10.1	154.7	26.8	90.0	14.1
11	Promontory	59.1	63.0	10.0	151.7	24.3	90.0	13.7
15	Paul	58.9	60.9	9.0	154.7	23.4	86.7	12.5
32	MTS0031	58.7	62.8	9.9	154.7	28.5	88.3	13.0
45	MTW01143	58.6	61.7	9.4	159.0	28.5	90.0	13.7
37	Millenium	57.8	62.5	9.8	152.0	26.0	90.0	14.3
42	MTR01108	57.6	62.4	10.1	156.7	23.2	88.3	14.1
27	MT9982	57.0	62.4	10.1	155.0	23.5	83.3	12.3
20	Prowers 99	56.4	63.3	10.0	152.0	29.4	86.7	13.7
35	Expedition	55.9	64.0	9.8	150.0	23.1	90.0	13.4
39	MTS0125	55.9	61.4	9.5	156.7	27.3	86.7	14.1
19	GM10004 (HWW)	55.7	61.7	10.0	153.3	27.4	88.3	12.8
34	Above (IMI)	55.5	62.7	9.8	150.3	21.8	88.3	13.1
6	Morgan	54.7	60.8	9.9	156.0	26.5	88.3	13.0
48	Judith	54.4	59.7	9.4	152.0	25.5	86.7	13.9
7	Bighorn	53.8	62.9	9.8	153.3	23.1	90.0	12.6
47	MT01148	53.6	60.8	9.9	158.3	26.6	86.7	13.5
26	AP 502CL (IMI)	53.1	61.8	9.1	149.7	21.0	88.3	13.2

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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 2002-03 season.

Planted: September 27, 2002 Harvested: July 29, 2003

Entry	Cultivar	Yield	Test weight	Grain moist	Heading date	Plant height	Winter survival	Protein
		Bu/A	Lb/Bu	%	Julian	in	%	%
46	MTW01146	52.6	60.6	9.3	158.7	28.0	90.0	14.5
13	BigSky	52.5	61.9	10.0	156.0	30.4	90.0	13.8
38	MTI01158 (IMI)	51.7	63.3	10.5	154.3	26.5	88.3	14.8
8	Quantum 542	51.6	62.9	9.8	151.7	28.1	86.7	13.6
49	Erhardt	51.2	62.0	10.0	153.3	25.5	86.7	14.6
3	Tiber	51.1	61.9	9.7	157.0	32.5	86.7	14.1
22	CDC Falcon	50.1	60.4	9.4	152.0	22.0	88.3	12.6
43	MTW01132	48.9	61.6	9.6	154.3	25.5	88.3	14.1
2	Rampart	48.4	61.9	10.1	156.3	26.2	78.3	14.1
40	MTS0131	48.0	62.2	9.7	156.0	26.6	86.7	13.9
17	NuHorizon (HWW)	45.4	63.7	9.9	151.0	21.0	88.3	12.8
16	NuFrontier (HWW)	44.7	64.0	10.3	151.7	22.6	83.3	12.1
44	MTW01133	44.2	60.6	9.7	152.0	23.0	90.0	13.1
36	Jerry	42.7	60.6	9.6	154.3	26.1	83.3	13.8
	Mean	56.7	61.9	9.8	154.1	26.1	88.0	13.3
	LSD (0.05)	14.23		0.72	1.54	3.32	4.31	
	C.V. (%)	15.40		4.52	0.62	7.84	3.02	