

Project Title: Intrastate Winter Wheat Variety Performance

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:

A preplant application of 30-30-60 was applied on September 23, 2009. Treatments were seeded 1.5 inches deep on September 24 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 7 by 7 lattice experimental design. A topdress application of nitrogen was applied at 70 lb/A on April 12, 2010. A mixture of Discover plus Harmony Extra was applied April 22 for weed control. Heading was recorded when 50 percent of the plants in a plot had half the head exposed. Height measurements were recorded near maturity. Varieties were evaluated for stripe rust on July 15. The study was harvested August 25. Grain yield, test weight, moisture, and grain protein were then determined.

Results:

The average Julian heading date for the nursery was 164 (June 13). Varieties Art and MTS0832 had the earliest (160) and latest (169) heading dates, respectively. Plant heights averaged 42.2 inches, with Carter being the shortest (36.5) and Peregrine being the tallest (42.2). Lodging was severe with several varieties, with the greatest lodging being observed with MTS0705 (60%) and Yellowstone (55%). Stripe rust was detected in 85% of the varieties. MT0890, MT0861, Curlew, Promontory, MTS0808, NI04421 (Robidoux), and MT06103 were resistant, while Decade (75%), MTS0832 (68%), Pryor (68%), Norris (65%), and Rocky (62%) were very susceptible to stripe rust. Yields averaged 142 Bu/A as compared to 86 Bu/A in 2009 and 127 Bu/A in 2008. Yields ranged from a high of 162 Bu/A for MT0871 to a low of 113 Bu/A for Pryor. Test weights averaged 61.9 lb/Bu, and ranged from 57.3 lb/Bu for Pryor to 64 lb/Bu for MT0866. Protein content was normal and averaged 12.3% for the nursery. Protein levels were highest for Bynum (CL) (14.2%) and lowest for MTS0832 (11.2%).

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

Planted: September 24, 2009		Field D2			Harvested: August 25, 2010			
Entry	Cultivar	Yield	Protein	Test	Stripe	Plant	Lodging	Heading
		bu/ac	%	weight	rust	height		date
				lb/bu	%	in	%	Julian
47	MT0871	162.4	12.1	61.6	7	42.5	0	165.7
2	Yellowstone	162.2	11.7	61.5	2	41.1	55	166.3
39	BZ9W05-2043	161.8	12.1	62.3	5	41.6	0	166.3
48	MT0890	161.2	12.6	62.5	0	42.1	2	164.7
31	MT0861	161.1	12.7	63.1	0	43.3	1	164.7
32	Curlew	158.4	12.5	61.7	0	45.7	8	164.3
9	Promontory	155.7	11.4	63.8	0	39.5	3	164.0
20	Peregrine	155.1	12.0	62.8	3	52.0	0	165.3
42	MTS0819	155.0	12.5	62.2	2	37.4	3	163.0
6	Jagalene	153.4	12.4	63.2	20	40.0	1	162.3
49	MTS0808	153.1	12.6	62.4	0	41.5	2	166.3
30	MTS0721	151.3	12.5	62.6	12	40.7	52	164.6
29	NI04421 (Robidoux)	150.2	11.8	62.1	0	42.5	17	160.7
23	MT06103	149.1	13.5	63.3	0	41.2	0	162.7
28	Settler CL	148.2	12.2	62.9	28	39.5	0	161.7
25	MTS0713	147.8	12.7	62.0	2	39.1	0	164.7
44	MTS0827	146.8	12.8	61.9	13	44.1	0	169.3
26	Radiant	146.6	11.8	62.2	2	43.7	1	166.3
17	MTS04114 (HWW)	145.8	12.8	62.5	3	40.3	15	164.0
34	Art	145.8	12.0	61.7	10	39.5	20	160.0
43	MTS0826	145.3	13.2	61.6	5	45.3	0	169.3
22	AP 503 CL2	144.4	12.5	62.7	2	39.0	1	164.3
27	Overland	143.9	12.2	62.0	35	42.7	3	162.7
16	Hyalite (CL, HWW)	143.3	12.3	63.3	9	43.0	0	162.7
41	MTS0532L	142.5	12.7	62.4	2	39.0	0	164.0
40	MTS04114L	141.9	13.0	62.6	2	42.4	0	165.3
12	Rocky	140.5	11.7	62.4	62	46.3	0	163.0
4	Ledger	139.8	11.4	61.7	23	40.6	7	163.0
3	CDC Falcon	139.5	11.6	62.0	5	40.0	0	164.7
1	Genou	139.5	12.5	62.6	30	44.0	0	165.7
21	Accipiter	138.1	11.7	61.0	10	43.0	0	168.3
11	Norris (CL)	138.0	12.3	63.7	65	44.9	2	162.7
13	Bynum (CL)	136.9	14.2	62.0	5	44.8	0	163.3
46	MT0866	136.5	12.7	64.0	12	43.6	3	165.3
14	Carter	135.5	11.9	61.0	10	36.5	0	164.7
5	Rampart	135.3	13.9	62.2	7	45.1	3	164.0

Table 1. Continued

Planted: September 24, 2009		Field D2			Harvested: August 25, 2010			
Entry	Cultivar	Yield bu/ac	Protein %	Test weight lb/bu	Stripe rust %	Plant height in	Lodging %	Heading date Julian
15	Wahoo	135.2	11.7	59.7	32	40.7	0	161.3
38	BZ9W05-2039	133.4	12.6	61.2	47	42.0	22	162.0
24	MTS0705	133.4	13.2	62.4	8	43.8	60	168.3
18	MTS0532 (HWW)	133.1	12.6	61.5	3	40.6	7	165.3
33	Broadview	132.6	11.6	61.0	33	41.2	3	165.0
45	MTS0832	129.4	11.2	59.9	68	45.4	0	169.7
37	CA9W07-817	129.0	12.0	61.6	45	43.6	0	167.0
35	Boomer	128.2	11.7	60.0	25	41.1	3	165.7
19	Decade	127.7	12.1	58.6	75	40.3	0	162.3
10	Neeley	127.7	11.3	61.5	37	46.3	7	166.0
36	Striker	119.2	11.9	61.5	43	37.8	0	165.0
7	Jerry	116.7	11.9	60.6	38	47.6	0	167.0
8	Pryor	113.2	12.4	57.3	68	40.0	10	165.3
	MIN	113.2	11.2	57.3	0.0	36.5	0.0	160.0
	MAX	162.4	14.2	64.0	75.0	52.0	60.0	169.7
	MEAN	142.3	12.3	61.9	19.0	42.2	6.0	164.7
	LSD (0.05)	14.80	NA	1.10	17.00	2.40	25.00	1.60
	CV	6.20	NA	1.00	55.00	3.40	237.00	0.60
	Trit (Pr >F)	0.0001	NA	0.0001	0.0001	0.0001	0.0002	0.0001