

<b><u>PROJECT TITLE:</u></b>	2006 Intra-State Winter Wheat Variety Performance		
<b><u>PROJECT LEADER:</u></b>	P.L. Bruckner	Plant Science	Bozeman, MT
<b><u>PROJECT PERSONNEL:</u></b>	J.E. Berg	RA- Plant Science	Bozeman, MT
	G.R. Carlson	NARC	Havre, MT
	J.L. Eckhoff	EARC	Sidney, MT
	G.D. Kushnak	WTARC	Conrad, MT
	K. D. Kephart	SARC	Huntley, MT
	R.N. Stougaard	NWARC	Kalispell, MT
	R. Johnston	Plant Science	Bozeman, MT
	W.E. Grey	Plant Science	Bozeman, MT
	N.R. Riveland	WREC	Williston, ND
	D.M. Wichman	CARC	Moccasin, MT

**OBJECTIVES:**

To evaluate new and existing winter wheat lines and varieties in dryland under various growing conditions in Montana and Western North Dakota.

**RESULTS:**

The 2006 Intrastate Winter Wheat Evaluation nursery was grown at Bozeman, Havre, Huntley, Kalispell, Moccasin, and Sidney, Montana and Williston, North Dakota. The 2006 Montana winter wheat crop performance, across the eight intrastate trial locations, was generally similar to expectations with the exceptions of test weight, plant height and heading date.

Yellowstone (MT00159) extended its streak to five consecutive years of having the over all high mean **yield**. Its 2006 overall mean yield was 70.7 bu/a (Table 1). The Havre and Moccasin were the only two locations where Yellowstone's yield was not statistically similar to the highest yield of the location. Willow Creek, forage winter wheat, had the lowest mean yield at 51.5 bu/a which was similar to the yields of the other bottom nine entries. The over all mean yield, 61.4 bu/a, was 5.2 bu/a lower than the 2005 mean yield. **Test weights were outstanding with six entries, topped by Jagalene for the second year in row, having eight location mean test weights greater than 63.0 lbs per bushel (Table 2).** The overall mean **grain protein** content, 12.9%, was the same as in 2005 with the protein up at four locations, down at three and the same at Conrad when compared to 2005 (Table 3). Plant heights, with an overall mean 31.1 inches, decreased at six locations with an overall average decrease of 5.9 inches (Table 4). The 2006 mean heading date (day 154.6 – June 4) was 8 days earlier than mean for 2005 (Table 5). Winter survival evaluations at Sidney and Williston each had range greater than 47% with Willow Creek have the highest stand survival at both locations (Table 6). Twenty seven of 49 entries exhibited some level of resistance to stripe rust at the Bozeman and/or Kalispell locations. Rampart exhibited an overall superiority in stem solidness when compared with 10 other entries. Vanguard, Bynum and Genou ranked 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup>, respectively, overall. Intrastate trials at Bozeman, Kalispell and Havre were evaluated for disease infestations and the rating ar presented in Table 7.

**SUMMARY:**

The environmental conditions across the intra-state winter wheat locations were such that plant height was shorter, maturity advanced, and test weights heavier.

**FUTURE PLANS:**

MAES will continue to evaluate winter wheat lines and varieties in uniform statewide trials.

Table 1. 2006 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Yield (bu/a) using test means

Cultivar/Line	Bozeman LAT	Havre LAT	Sidney LAT	Williston LAT	Kalispell RCB	Moccasin RCB	Huntley LAT	Conrad LAT	8 Loc Avg <sup>1/</sup>
Yellowstone	99.4*	63.7*	56.9	37.9*	77.7*	59.9	91.4*	83.7*	70.7**
MDM (HWW)	103.8**	48.7	51.0	33.2	73.7*	59.2	89.1*	75.4	69.0*
+ MT0495	85.5	54.4	56.7	41.2*	75.9*	61.9*	84.1	85.4*	67.8*
MT01148	95.5	59.4	63.0**	38.5*	64.1	61.4	84.2	74.2	67.1*
+ MTCL0477	86.3	61.3*	60.2*	39.8*	64.2	68.6**	86.5*	82.5*	66.7*
Wahoo	91.3	66.9**	58.2*	39.3*	64.9	49.3	91.5*	80.3*	66.1*
Bauermeister	93.8	51.7	42.9	25.1	83.6**	57.3	81.8	86.5*	65.7*
+ MT0419	87.7	59.4	50.9	33.6	69.1*	57.3	79.9	84.9*	65.3*
NuFrontier (HWW)	85.0	54.4	53.9	30.1	70.9*	48.3	90.5*	84.9*	64.9*
Pryor	79.5	58.6	57.8*	32.3	71.1*	61.4	77.7	84.7*	64.9*
#+ Golden Spike	80.7	57.1	43.4	31.5	74.6*	65.2*	89.2*	74.8	64.6*
MT03176	91.0	60.3*	50.2	40.8*	66.1	53.0	84.3	74.9	64.0*
Bond CL	73.8	58.6	47.8	28.8	65.7	61.7	87.4*	88.5**	63.9*
Hatcher	89.3	56.6	43.3	27.8	66.1	50.3	90.1*	81.7*	63.5
MT02113	72.8	60.7*	58.2*	34.0	51.6	61.2	84.2	82.1*	63.5
Promontory	92.8	53.8	51.6	32.3	71.0*	55.1	84.5	76.3	63.5
CDC Falcon	77.5	60.9*	61.7*	36.6*	56.9	53.8	82.0	80.4*	63.4
+ MTR0441	85.7	58.5	58.3*	37.3*	67.0	53.6	80.0	74.3	62.9
+ MT0403	91.3	54.0	58.4*	35.5	44.9	47.2	97.1**	74.7	62.5
Rocky	85.7	62.5*	51.1	39.5*	61.6	53.9	77.1	76.5	62.2
+ MTCL0486	77.2	52.8	44.8	36.5*	62.3	51.1	78.4	85.6*	62.1
Tiber	83.7	57.0	49.5	34.4	64.0	55.6	79.2	69.4	62.1
+ MTS04114 (HWW)	89.2	51.9	50.1	35.1	53.6	50.0	85.7	73.0	61.9
Jerry	88.7	55.5	57.8*	43.5**	57.4	53.7	76.0	54.1	60.9
#+ CDC Buteo	78.3	57.0	58.4*	40.1*	52.2	48.1	80.6	67.2	60.7
Neeley	69.9	54.4	55.8	29.7	61.3	64.2*	72.0	76.5	60.7
Genou	71.1	55.9	52.5	26.0	67.3	51.9	85.4	77.0	60.6
+ MT0423	74.3	50.9	52.7	19.6	58.6	57.2	89.4*	69.1	60.6
+ MTS04120	81.3	51.8	47.8	31.0	60.4	50.5	79.0	77.9	60.6
#+ NuDakota (HWW)	82.3	55.9	50.9	31.9	43.7	52.0	83.0	81.0*	60.6
Norris (CL)	77.4	56.4	52.1	35.0	53.9	52.5	81.0	84.0*	60.5
Jagalene	79.1	49.9	47.8	36.0*	58.7	49.1	90.9*	70.3	60.2
# Ledger	70.3	52.1	48.1	30.3	62.6	53.3	82.0	78.1	60.2
Millenium	83.3	50.9	50.8	34.0	61.0	43.8	85.0	68.4	60.0
Hyalite (CL, HWW)	70.5	50.8	53.1	34.4	51.2	46.8	86.1	82.6*	59.9
+ Wendy (HWW)	79.5	52.9	47.0	38.0*	53.7	44.1	85.0	71.0	59.7
Paul	59.8	56.8	58.5*	33.6	39.3	62.5*	81.3	86.6*	59.3
Rampart	80.4	49.7	45.2	24.7	73.9*	44.9	77.8	71.1	58.7
Morgan	74.5	57.3	59.1*	40.6*	44.3	55.2	79.3	60.2	58.6
BigSky	62.1	59.1	51.1	35.0	45.0	58.9	78.6	75.6	57.9
Bynum (CL)	74.9	48.3	43.4	25.2	59.0	43.4	82.2	70.9	57.7
Above (CL)	64.7	53.6	43.4	29.9	54.2	53.7	77.7	83.2*	57.1
# Carter (BZ9W02-2060)	73.7	46.9	42.9	29.2	60.1	49.2	75.3	69.5	56.5
NuSky (HWW)	65.8	55.8	57.2*	40.1*	36.6	57.7	71.0	65.7	56.4
Vanguard	75.2	52.4	48.6	27.5	50.3	48.3	78.0	68.0	56.1
MTW01133	57.7	63.9*	52.2	28.5	35.5	55.1	83.3	83.3*	55.8
NuWest (HWW)	64.5	57.5	52.9	37.2*	37.0	55.5	76.9	65.5	55.8
MT1159CL (CL)	68.2	45.4	41.7	16.0	55.1	45.6	76.4	70.6	52.8
+ Willow Creek (forage)	72.4	44.8	46.8	31.6	67.5	45.8	46.9	50.0	51.5
Average	79.5	53.9	51.8	33.3	59.6	53.9	82.0	75.8	61.4
LSD (0.05)	6.9	7.5	6.1	7.7	14.9	6.8	10.9	9.5	7.0
C.V. (%)	5.2	7.7	6.7	13.3	15.5	7.8	7.6	7.7	11.6
P-value (Varieties)	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

Table 2. 2006 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Test Weight (lb/bu)

Cultivar/Line	Bozeman LAT	Havre LAT	Sidney LAT	Williston RCB	Kalispell RCB	Moccasin RCB	Huntley LAT	Conrad 1 rep	8 Loc Avg
Jagalene	64.8*	64.2	63.4**	60.8**	65.8*	64.2**	62.4*	64.7	63.8**
Rocky	63.8	65.7**	62.4*	60.3*	65.9*	63.6*	62.7*	63.9	63.8*
Promontory	65.2**	63.9	61.9	60.5*	66.4*	62.9	63.2*	63.6	63.6*
#+ CDC Buteo	64.4	63.9	62.3*	60.5*	65.7*	63.8*	62.7*	64.4	63.5*
+ MTR0441	63.8	63.7	62.8*	60.5*	65.3	63.0	62.3*	63.2	63.2*
NuFrontier (HWW)	64.3	64.3	62.2	59.3*	66.6**	64.1*	63.5**	60.9	63.2*
Norris (CL)	63.6	63.9	62.0	60.0*	66.0*	63.0	61.3	63.0	62.9*
Hatcher	63.7	63.6	61.5	58.8	65.5	63.0	62.9*	63.2	62.8
# Ledger	62.7	63.4	61.6	58.1	65.5	62.9	62.3*	63.7	62.6
+ MTCL0486	62.6	63.6	61.9	59.2*	65.0	62.9	61.5	63.2	62.6
+ Wendy (HWW)	63.7	63.0	61.8	60.2*	64.5	62.7	62.8*	61.9	62.6
Bynum (CL)	63.2	63.1	60.7	58.2	66.0*	61.3	63.0*	62.7	62.5
Tiber	63.7	62.5	61.0	58.2	65.7*	61.6	62.3*	63.0	62.4
BigSky	62.6	63.1	61.7	58.5	64.7	62.6	61.3	63.2	62.3
Bond CL	62.5	63.7	61.0	58.2	65.3	63.2*	61.2	62.8	62.3
Genou	62.8	62.6	61.2	56.7	66.5*	63.1	62.9*	63.5	62.3
Hyalite (CL, HWW)	61.7	63.1	61.0	58.9	65.0	63.2*	61.5	63.2	62.2
Millenium	62.8	62.5	61.3	59.0*	65.3	62.3	61.8*	62.4	62.2
+ MTS04114 (HWW)	63.8	62.3	60.5	58.7	64.7	61.0	62.0*	63.6	62.2
+ MTS04120	62.8	62.6	60.8	57.8	66.3*	61.9	61.5	63.0	62.2
Rampart	63.2	62.4	60.3	56.6	66.3*	61.9	62.2*	64.4	62.2
CDC Falcon	61.7	62.9	61.5	57.3	66.4*	63.3*	60.5	63.7	62.1
Vanguard	62.7	62.6	60.8	57.4	65.6*	61.7	62.1*	62.8	62.1
Above (CL)	61.9	62.8	60.3	59.1*	64.2	62.2	61.9*	62.3	61.9
+ MT0403	62.8	62.4	61.2	58.2	64.6	63.0	61.6	62.1	61.9
+ MT0419	62.4	62.5	60.8	57.4	65.1	61.9	60.7	63.1	61.8
+ MT0423	61.7	62.4	61.1	55.7	65.8*	63.5*	61.2	63.4	61.7
Jerry	62.0	62.1	61.0	57.9	64.6	61.3	60.9	62.0	61.6
MT01148	62.9	62.1	60.8	55.7	64.7	59.2	61.6	63.2	61.6
Neeley	62.3	62.0	60.9	57.5	65.1	61.5	59.9	63.2	61.6
#+ NuDakota (HWW)	62.9	62.5	60.2	57.4	64.0	62.2	61.4	62.0	61.6
Pryor	61.1	62.4	60.9	56.0	65.9*	63.2*	60.5	63.9	61.6
# Carter (BZ9W02-2060)	61.3	61.9	61.3	57.3	65.6*	63.2*	60.0	63.0	61.5
#+ Golden Spike	62.2	61.9	59.7	57.1	65.5	62.4	60.5	63.2	61.5
Wahoo	61.7	62.3	61.0	57.2	64.5	62.8	60.1	62.6	61.5
Yellowstone	62.2	62.2	60.6	56.7	65.0	60.8	61.0	62.2	61.5
+ MTCL0477	61.7	62.9	60.3	56.4	65.5	62.1	59.6	62.3	61.4
MTW01133	60.3	63.3	61.5	57.0	63.3	61.8	60.3	62.5	61.4
Morgan	61.8	61.8	60.9	57.0	64.4	61.8	60.4	62.7	61.3
NuWest (HWW)	60.7	63.2	60.3	57.9	61.5	61.9	60.4	62.3	61.2
NuSky (HWW)	61.2	62.6	60.6	58.0	62.6	62.1	59.0	62.4	61.1
+ MT0495	61.8	62.2	59.5	55.5	65.2	62.2	58.2	62.3	60.9
MT03176	61.6	62.2	59.8	56.1	64.2	62.0	59.1	61.6	60.8
MT1159CL (CL)	60.5	61.5	57.9	56.4	63.7	60.2	61.5	61.1	60.5
MT02113	59.5	61.3	59.9	55.4	64.4	61.1	58.8	62.7	60.4
Paul	59.0	61.5	60.3	54.9	63.2	62.1	59.3	62.8	60.3
+ Willow Creek (forage)	61.8	60.1	57.5	54.4	64.6	58.1	60.5	61.2	60.0
MDM (HWW)	61.2	59.2	55.1	54.0	64.5	55.6	57.8	62.5	59.2
Bauermeister	60.1	59.3	53.7	51.0	64.0	55.5	58.4	61.2	58.4
Average	62.3	62.5	60.7	57.5	65.0	62.0	61.1	62.8	61.8
LSD (0.05)	0.6	1.0	1.1	1.9	1.0	1.0	1.8		0.8
C.V. (%)	0.6	1.0	1.1	1.7	1.0	0.8	1.6		1.4
P-value (Varieties)	<.0001	<.0001	<.0001	0.0001	<.0001	<.0001			<.0001

+ = new for 2006 # = paid entry

**Table 3. 2006 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Protein (%)**

Cultivar/Line	Bozeman Bulk	Havre Bulk	Sidney Bulk	Williston Bulk	Kalispell Bulk	Moccasin Bulk	Huntley Bulk	Conrad Bulk	8 Loc Avg
Vanguard	12.2	14.5	14.8	15.3	14.0	12.8	14.7	14.2	<b>14.1**</b>
Rampart	12.0	14.3	13.3	16.0	13.7	13.4	15.3	14.5	<b>14.1**</b>
+ Willow Creek (forage)	13.8	15.2	13.0	16.5	12.5	11.6	15.6	14.2	<b>14.1*</b>
Bynum (CL)	11.9	14.0	13.3	15.3	14.7	14.0	13.3	14.9	<b>13.9*</b>
+ Wendy (HWW)	12.6	13.7	13.1	14.0	15.1	14.2	13.7	14.6	<b>13.9*</b>
# Carter (BZ9W02-2060)	11.4	13.9	13.6	15.2	13.6	12.9	15.0	13.3	<b>13.6*</b>
+ MTS04114 (HWW)	12.0	14.0	13.7	14.0	13.9	13.5	12.9	14.4	<b>13.5*</b>
Genou	11.4	13.9	15.0	15.5	12.5	11.6	14.6	13.6	<b>12.5*</b>
MT03176	11.7	13.2	14.0	14.4	13.4	13.0	15.1	13.3	<b>13.5*</b>
+ MT0495	11.0	14.4	13.8	15.1	13.4	11.1	15.4	13.2	<b>13.4*</b>
Jagalene	12.0	13.4	14.1	14.5	14.0	12.4	13.4	13.5	<b>13.4*</b>
BigSky	11.1	14.0	13.2	15.2	13.0	12.4	14.4	13.6	13.4
MT1159CL (CL)	11.6	12.6	13.3	15.2	13.5	13.4	13.4	13.5	13.3
Hyalite (CL, HWW)	11.5	14.0	14.7	14.6	12.2	13.0	12.8	13.5	13.3
Millenium	10.8	14.1	13.5	13.6	12.5	13.0	13.8	14.1	13.2
MT01148	11.5	13.8	13.6	14.2	13.8	11.0	13.5	13.3	13.1
Jerry	11.1	13.0	14.4	13.6	12.9	12.2	14.2	13.3	13.1
NuSky (HWW)	11.1	14.2	14.6	13.7	12.0	11.3	15.2	12.5	13.1
+ MT0403	11.4	13.1	14.1	14.5	12.4	12.6	12.6	13.7	13.1
Tiber	11.6	13.8	13.3	14.4	12.8	12.3	13.1	13.1	13.1
+ MTS04120	11.1	13.0	12.3	14.7	12.3	12.1	15.2	13.2	13.0
+ MTCL0486	11.1	13.9	13.7	14.5	12.1	12.4	13.0	13.1	13.0
Paul	10.9	13.2	13.2	15.3	12.9	11.5	13.8	12.5	12.9
+ MT0419	11.7	13.5	13.0	14.6	12.3	11.9	13.1	12.9	12.9
Norris (CL)	11.1	12.4	13.5	13.4	12.7	12.4	13.5	13.4	12.8
MTW01133	10.7	13.6	12.6	14.3	12.4	13.0	12.1	13.7	12.8
Wahoo	11.4	13.4	13.9	13.2	12.1	12.1	13.1	13.2	12.8
#+ NuDakota (HWW)	12.2	12.6	13.2	13.5	13.5	12.6	11.2	13.3	12.8
+ MTR0441	10.7	13.4	12.7	13.7	12.2	12.8	13.1	13.5	12.7
#+ CDC Buteo	10.8	13.5	12.4	13.6	13.2	12.0	13.9	12.5	12.7
Rocky	10.6	12.3	12.6	13.0	13.2	12.5	14.4	13.3	12.7
NuWest (HWW)	9.9	13.4	12.7	14.1	12.7	12.2	13.7	13.0	12.7
+ MTCL0477	11.1	12.2	13.3	14.3	12.4	11.4	14.5	12.4	12.7
+ MT0423	10.8	13.2	12.7	15.0	11.9	11.9	13.3	12.4	12.6
Morgan	10.2	13.3	11.8	14.6	12.8	11.8	13.4	13.0	12.6
# Ledger	11.1	12.0	12.6	13.8	11.9	12.5	12.8	13.6	12.5
Yellowstone	11.4	13.4	12.0	14.0	12.2	11.8	12.9	12.4	12.5
Neeley	10.5	12.4	12.2	14.4	11.9	11.1	13.5	12.5	12.3
Promontory	11.0	12.1	12.0	13.2	12.6	12.4	12.4	12.3	12.3
Hatcher	10.3	12.1	12.3	13.2	12.7	11.8	11.9	12.8	12.1
Above (CL)	10.7	11.7	12.8	12.6	11.8	11.6	11.9	13.2	12.0
Bauermeister	10.3	13.3	11.3	14.1	11.1	10.9	13.8	11.3	12.0
CDC Falcon	10.9	12.4	11.7	13.6	11.8	11.6	11.5	12.4	12.0
NuFrontier (HWW)	10.2	11.9	11.7	13.0	12.5	12.3	12.1	12.2	12.0
#+ Golden Spike	10.3	12.4	12.1	13.6	11.2	10.7	13.6	11.9	12.0
Pryor	11.1	13.2	11.3	14.2	12.4	10.2	11.6	11.4	11.9
MDM (HWW)	10.1	14.2	11.0	14.7	10.1	10.9	13.3	11.1	11.9
Bond CL	10.2	11.8	12.4	13.2	12.0	11.6	11.4	12.4	11.9
MT02113	10.7	13.0	11.3	13.1	11.4	10.5	12.7	11.8	11.8
Average	<b>11.2</b>	<b>13.3</b>	<b>13.0</b>	<b>14.2</b>	<b>12.7</b>	<b>12.1</b>	<b>13.4</b>	<b>13.1</b>	<b>12.9</b>
LSD (0.05)									<b>0.7</b>
C.V. (%)									<b>5.3</b>
P-value (Varieties)									<b>&lt;.0001</b>

+ = new for 2006 # = paid entry

**Table 4. 2006 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Plant Height (in)**

Cultivar/Line	Bozeman LAT	Havre LAT	Sidney LAT	Williston LAT	Kalispell RCB	Moccasin RCB	Huntley LAT	Conrad 1 rep	8 Loc Avg
+ Wendy (HWW)	28.7	21.7	20.5	22.1	25.1	28.1	30.5	28	25.6
#+ NuDakota (HWW)	26.6	21.9	20.4	22.3	23.9	30.2	31.9	29	25.8
CDC Falcon	30.2	22.4	23.9	24.7	25.1	27.8	31.4	28	26.7
# Carter (BZ9W02-2060)	30.2	22.3	22.9	23.3	26.9	30.3	30.2	28	26.8
Above (CL)	30.4	21.7	20.8	22.7	28.1	29.8	34.1	28	26.9
MTW01133	29.0	22.9	23.9	24.5	25.3	31.5	31.2	29	27.2
Hatcher	31.4	24.9	23.0	24.6	25.9	28.2	34.4	29	27.7
Pryor	31.8	23.9	25.1	26.0	26.2	31.2	30.1	30	28.0
+ MTR0441	31.6	23.2	25.3	23.8	26.6	32.0	32.6	30	28.1
# Ledger	31.4	24.6	23.2	24.3	27.3	34.0	33.4	32	28.8
NuFrontier (HWW)	32.7	23.4	25.3	25.6	27.6	31.2	36.6	30	29.0
+ MT0419	33.3	23.6	26.6	25.1	28.5	33.9	32.1	32	29.4
MT1159CL (CL)	33.1	23.6	26.0	25.6	30.2	33.2	35.0	30	29.6
Bond CL	32.7	24.8	22.9	26.8	29.0	33.5	34.1	33	29.6
Jagalene	32.5	26.4	24.7	25.5	27.4	33.6	35.3	32	29.7
+ MTCL0486	33.9	22.1	26.2	26.2	29.5	32.7	36.4	31	29.7
Wahoo	33.9	26.4	24.4	26.1	29.0	32.0	35.4	32	29.9
+ MTS04114 (HWW)	33.0	27.7	26.7	27.5	26.2	33.2	33.7	32	30.0
Paul	33.2	24.3	27.1	28.4	25.6	34.8	32.5	35	30.1
Millenium	34.9	27.2	25.0	27.1	28.9	33.1	37.4	30	30.4
+ MT0495	34.4	26.2	27.0	28.0	28.5	34.5	34.7	33	30.8
MT02113	34.2	25.7	27.5	27.8	29.3	33.9	33.5	35	30.9
Norris (CL)	35.8	24.3	26.0	27.0	29.3	33.3	39.1	34	31.1
Bynum (CL)	35.8	26.6	28.0	27.5	30.1	35.2	36.8	31	31.4
Promontory	33.9	25.4	26.4	27.3	30.3	36.9	34.9	36	31.4
+ MT0403	35.0	27.7	26.8	28.9	28.7	34.3	37.8	32	31.4
MDM (HWW)	34.0	26.7	26.5	27.8	29.8	35.4	36.7	35	31.5
Hyalite (CL, HWW)	35.3	25.8	27.4	27.7	29.3	35.0	38.5	33	31.5
Bauermeister	35.0	27.5	25.8	27.3	31.0	35.0	34.8	36	31.5
MT03176	35.7	27.8	27.1	29.0	29.0	35.0	36.8	34	31.8
Yellowstone	35.1	28.8	26.2	28.0	29.7	38.5	36.9	34	32.1
Rampart	36.3	26.7	26.6	27.0	33.6	35.7	36.4	35	32.2
Morgan	36.2	26.4	29.4	29.2	31.0	32.8	37.2	37	32.4
Rocky	36.7	27.6	24.5	28.7	33.3	36.7	37.2	35	32.5
+ MTS04120	37.2	30.0	26.8	29.0	31.1	35.2	38.5	35	32.8
+ MT0423	35.6	27.2	27.7	27.7	30.1	39.9	38.7	36	32.9
Neeley	37.4	26.0	29.1	29.1	33.2	36.4	37.4	35	33.0
MT01148	37.7	26.4	27.7	29.2	30.4	39.2	36.2	37	33.0
Genou	36.5	28.3	27.4	30.2	32.8	35.4	38.3	35	33.0
NuWest (HWW)	37.1	27.3	27.8	29.4	30.1	39.2	37.1	36	33.0
Vanguard	36.7	28.5	28.5	28.2	29.3	39.5	39.4	36	33.3
#+ Golden Spike	36.8	27.6	27.0	29.4	31.8	40.0	36.5	37	33.3
+ MTCL0477	36.4	28.5	29.6	29.8	30.3	37.4	37.3	37	33.3
#+ CDC Buteo	38.2	28.4	28.3	29.4	31.0	35.8	38.2	39	33.5
NuSky (HWW)	37.6	27.2	29.7	30.5	29.3	38.8	37.1	39	33.7
BigSky	38.7	27.2	30.2	30.2	32.2	39.0	40.4	36	34.2
Jerry	38.6	26.6	30.0	31.9	29.7	38.6	38.7	40	34.3
Tiber	40.6	27.1	30.9	30.6	32.4	38.6	41.3	36	34.7
+ Willow Creek (forage)	54.3	33.9	43.8	40.8	47.8	49.0	47.2	51	46.0
Average	34.8	26.0	26.6	27.5	29.5	34.9	36.0	33.7	31.1
LSD (0.05)	1.2	2.6	2.3	2.0	2.9	3.7	2.6		1.4
C.V. (%)	2.1	6.1	4.9	4.4	6.1	6.6	4.4		4.7
P-value (Varieties)	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001			<.0001

+ = new for 2006 # = paid entry

**Table 5. 2006 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Heading Date (Julian)**

Cultivar/Line	Bozeman LAT	Havre LAT	Sidney LAT	Williston LAT	Kalispell RCB	Moccasin RCB	Huntley LAT	Conrad 1 rep	8 Loc Avg
<b>Above (CL)</b>	157.0	146.1	152.2	155.7	142.0	150.0	144.3	151	149.8
<b>Bauermeister</b>	167.2	158.1	162.4	169.0	155.3	159.7	155.1	159	160.7
<b>BigSky</b>	162.2	152.2	156.6	159.3	150.0	156.0	149.7	155	155.1
<b>Bond CL</b>	156.0	146.2	151.9	155.7	142.0	151.0	144.3	151	149.8
<b>Bynum (CL)</b>	159.4	151.7	158.3	162.3	144.7	154.3	148.0	154	154.1
<b># Carter (BZ9W02-2060)</b>	160.3	152.1	155.8	163.3	147.0	154.0	149.6	154	154.5
<b>#+ CDC Buteo</b>	163.4	152.2	156.3	158.7	150.7	156.3	151.3	155	155.5
<b>CDC Falcon</b>	161.0	151.1	155.3	158.3	146.7	155.0	149.0	156	154.0
<b>Genou</b>	160.7	152.2	156.1	162.0	147.7	154.7	150.9	155	154.9
<b>#+ Golden Spike</b>	164.7	154.2	158.9	163.7	152.3	157.7	152.7	158	157.8
<b>Hatcher</b>	157.5	148.2	154.0	156.3	144.0	152.0	144.6	155	151.4
<b>Hyalite (CL, HWW)</b>	159.3	149.3	155.4	158.0	144.7	153.0	145.3	153	152.3
<b>Jagalene</b>	158.9	148.9	155.1	158.0	144.7	153.7	148.0	155	152.8
<b>Jerry</b>	162.8	152.4	156.0	159.7	149.3	155.7	150.7	155	155.2
<b># Ledger</b>	160.6	152.1	157.1	162.3	145.0	155.0	150.3	156	154.8
<b>MDM (HWW)</b>	168.2	157.9	163.5	167.0	156.0	160.7	154.3	158	160.7
<b>Millenium</b>	159.7	150.6	156.0	157.3	146.3	153.7	147.0	153	153.0
<b>Morgan</b>	164.5	154.1	157.2	162.3	153.0	157.7	152.7	157	157.3
<b>MT01148</b>	164.2	152.7	157.3	163.7	152.0	157.3	152.7	159	157.4
<b>MT02113</b>	162.2	152.2	156.8	160.3	151.7	156.7	151.4	156	155.9
<b>MT03176</b>	159.3	150.2	154.4	158.3	146.0	153.0	148.0	153	152.8
<b>+ MT0403</b>	159.5	148.5	154.1	157.7	146.7	155.7	145.0	153	152.5
<b>+ MT0419</b>	161.2	152.4	156.5	160.7	150.7	156.0	152.1	155	155.6
<b>+ MT0423</b>	161.1	153.0	157.0	161.0	146.0	154.7	148.1	155	154.5
<b>+ MT0495</b>	162.2	151.7	156.7	161.0	148.3	155.7	151.6	156	155.4
<b>MT1159CL (CL)</b>	162.2	152.5	157.8	165.3	152.0	155.7	149.3	155	156.2
<b>+ MTCL0477</b>	161.0	151.8	156.7	160.7	146.7	154.7	151.5	154	154.6
<b>+ MTCL0486</b>	161.1	149.6	156.1	158.0	147.7	154.7	149.4	154	153.8
<b>+ MTR0441</b>	159.3	150.6	154.3	158.0	146.0	153.3	148.7	154	153.0
<b>+ MTS04114 (HWW)</b>	160.0	151.4	156.0	159.7	148.0	154.3	149.1	155	154.2
<b>+ MTS04120</b>	162.1	152.6	158.1	162.3	148.3	155.3	152.0	155	155.7
<b>MTW01133</b>	158.0	149.9	153.4	156.3	144.0	154.0	146.8	153	151.9
<b>Neeley</b>	163.5	153.5	157.9	163.7	152.7	157.3	152.9	156	157.2
<b>Norris (CL)</b>	158.4	148.6	152.5	156.3	145.0	155.7	144.9	153	151.8
<b>#+ NuDakota (HWW)</b>	158.6	148.2	153.5	158.3	142.0	152.3	144.8	152	151.2
<b>NuFrontier (HWW)</b>	158.4	149.9	154.9	158.7	145.0	153.0	147.6	154	152.7
<b>NuSky (HWW)</b>	163.1	151.6	157.1	160.7	150.0	156.7	153.0	156	156.0
<b>NuWest (HWW)</b>	161.2	152.1	157.0	160.3	150.0	156.7	152.6	155	155.6
<b>Paul</b>	163.1	153.1	157.6	162.3	148.3	155.7	152.1	156	156.0
<b>Promontory</b>	159.5	152.3	154.4	157.3	149.0	155.0	152.0	156	154.4
<b>Pryor</b>	164.4	152.4	158.5	164.7	151.3	155.7	152.0	156	156.9
<b>Rampart</b>	161.2	153.2	158.4	163.3	147.7	155.7	151.0	155	155.7
<b>Rocky</b>	158.9	150.5	153.4	158.0	144.7	154.0	150.2	153	152.8
<b>Tiber</b>	163.3	152.4	158.3	163.0	152.0	156.7	151.4	155	156.5
<b>Vanguard</b>	160.7	152.5	156.7	161.7	146.3	155.3	149.2	156	154.8
<b>Wahoo</b>	157.5	147.6	152.5	157.3	144.7	151.3	145.4	152	151.0
<b>+ Wendy (HWW)</b>	155.5	145.2	151.1	154.7	142.0	151.3	144.7	151	149.4
<b>+ Willow Creek (forage)</b>	173.4	159.4	164.8	169.3	158.0	162.3	154.7	161	162.9
<b>Yellowstone</b>	161.8	152.4	156.5	161.7	148.7	156.0	151.7	155	155.5
<b>Average</b>	<b>161.2</b>	<b>151.5</b>	<b>156.3</b>	<b>160.5</b>	<b>148.0</b>	<b>155.1</b>	<b>149.7</b>	<b>154.9</b>	<b>154.6</b>
<b>LSD (0.05)</b>	<b>1.3</b>	<b>1.4</b>	<b>1.1</b>	<b>2.2</b>	<b>1.6</b>	<b>5.1</b>	<b>1.2</b>		<b>1.2</b>
<b>C.V. (%)</b>	<b>0.5</b>	<b>0.5</b>	<b>0.4</b>	<b>0.9</b>	<b>0.7</b>	<b>0.8</b>	<b>0.5</b>		<b>0.8</b>
<b>P-value (Varieties)</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>			<b>&lt;.0001</b>

+ = new for 2006 # = paid entry

Table 6. 2006 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Winter Survival (%)

Cultivar/Line	Sidney LAT	Williston LAT	2 Loc Avg.
	23-May	24-May	
+ Willow Creek (forage)	88.2**	53.3**	68.3**
Jerry	86.0*	49.3*	66.7*
Morgan	86.4*	50.8*	66.7*
NuSky (HWW)	82.1*	44.6*	66.7*
Wahoo	85.2*	47.2*	65.8*
+ MTR0441	81.6*	48.9*	65.0*
MT01148	83.5*	42.3*	63.3*
+ MTCL0477	79.3*	44.7*	63.3*
+ MT0403	83.2*	42.0	62.5*
+ MT0495	76.4	48.0*	62.5*
Yellowstone	76.0	44.2*	62.5*
#+ CDC Buteo	77.1*	51.4*	61.7*
MT03176	71.0	49.9*	61.7*
CDC Falcon	80.3*	45.8*	60.8*
+ Wendy (HWW)	77.5*	45.1*	59.2*
Jagalene	74.6	37.9	58.3*
+ MT0419	66.6	43.2*	58.3*
Paul	79.0*	36.8	58.3*
Hyalite (CL, HWW)	69.8	39.5	57.5*
Rocky	72.4	47.0*	57.5*
Millenium	78.3*	37.6	56.7*
Norris (CL)	74.4	41.8	56.7*
BigSky	79.5*	36.4	55.8
Tiber	76.2	37.5	55.0
NuWest (HWW)	65.5	43.0*	54.2
+ MTCL0486	68.5	39.1	53.3
+ MTS04114 (HWW)	64.4	43.3*	53.3
MTW01133	70.4	25.5	51.7
Promontory	67.1	36.4	51.7
Pryor	73.2	32.5	50.0
Genou	71.0	27.1	49.2
#+ Golden Spike	57.6	37.9	48.3
MT02113	61.4	27.9	48.3
#+ NuDakota (HWW)	68.0	25.3	48.3
NuFrontier (HWW)	66.1	34.1	48.3
# Ledger	55.7	34.2	47.5
Vanguard	63.9	25.7	47.5
Neeley	68.8	24.6	46.7
# Carter (BZ9W02-2060)	60.6	29.4	45.8
+ MTS04120	56.9	29.8	45.8
Above (CL)	56.9	32.9	45.0
MDM (HWW)	57.9	37.8	44.2
Bond CL	59.7	23.9	40.0
Bynum (CL)	54.6	23.3	36.7
+ MT0423	55.0	15.2	35.8
Rampart	55.5	19.3	35.8
Bauermeister	42.5	18.8	32.5
Hatcher	43.0	23.4	32.5
MT1159CL (CL)	40.8	6.2	22.5
<b>Average</b>	<b>69.2</b>	<b>36.4</b>	<b>52.8</b>
<b>LSD (0.05)</b>	<b>11.2</b>	<b>11.0</b>	<b>11.9</b>
<b>C.V. (%)</b>	<b>9.1</b>	<b>17.5</b>	<b>7.0</b>
<b>P-value (Varieties)</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>

+ = new for 2006 # = paid entry

**Table 7. 2006 Intrastate Winter Wheat Test (Exp. 35): Bozeman and Kalispell Stripe Rust**

Cultivar/Line	Stripe Rust (%) <sup>1/</sup>							
	Bozeman Intrastate		Bozeman Increases		Kalispell (Stougaard)		Average BZ + KS	Severity reaction
	Grey	Berg	Grey	Berg	Early Rxn.	Flag		
					1,3,4 <sup>2/</sup>	Leaf %		
	23-Jun	28-Jun	23-Jun	28-Jun	22-May	20-Jun		
+ Willow Creek (forage)	3.4	3.9	5	5	1.0	0.0	3.5	R
#+ NuDakota (HWW)	2.7	4.7	0	5	1.0	5.7	3.6	R
MT03176	4.8	7.7	0	5	1.0	5.0	4.5	R
Yellowstone	0.0	6.7	5	8	1.7	5.0	4.8	R
+ MTS04114 (HWW)	0.0	4.6	10	5	1.0	5.7	5.1	R
MT01148	0.0	7.8	10	5	1.0	6.7	5.9	R
Jagalene	3.8	12.3	5	5	3.0	4.0	6.0	R
Promontory	3.6	9.3	5	10	1.0	3.0	6.2	R
+ MTR0441	0.0	6.5	20	5	1.0	6.7	7.6	R
+ MT0495	4.5	9.6	5	15	1.0	4.7	7.8	R
Bynum (CL)	3.2	13.4	5	15	1.0	6.7	8.6	R
Rampart	2.2	17.9	10	18	1.0	5.0	10.5	R
+ MT0419	9.8	12.0	10	15	2.3	8.3	11.0	R
# NuFrontier (HWW)	11.5	12.7	5	20	1.0	9.0	11.6	R
+ Wendy (HWW)	6.3	5.5	25	25	1.7	8.0	14.0	R
#+ Golden Spike	7.1	23.4	20	20	1.0	10.0	16.1	R
Jerry	5.8	10.3	25	35	2.3	18.3	18.9	MR
# Ledger	8.5	40.9	10	25	1.7	16.7	20.2	MR
Hatcher	16.4	22.6	20	30	1.0	13.3	20.5	MR
MDM (HWW)	11.4	21.9	30	45	1.7	5.0	22.7	R
Millenium	17.3	42.1	15	30	1.7	23.3	25.5	MR
Vanguard	15.0	34.4	30	45	1.0	6.7	26.2	MR
+ MTS04120	13.7	22.6	30	45	3.0	21.7	26.6	MR
Bauermeister	16.8	31.8	30	60	1.0	5.0	28.7	MR
+ MTCL0477	16.6	29.7	30	55	1.7	18.3	29.9	MR
Norris (CL)	20.4	47.6	10	25	2.0	50.0	30.6	S
+ MT0403	15.5	22.9	30	30	3.0	60.0	31.7	S
Rocky	3.7	22.1	30	55	1.7	53.3	32.8	S
MT1159CL (CL)	24.0	22.7	40	70	2.3	10.0	33.3	MR
# Carter (BZ9W02-2060)	7.2	40.3	40	60	3.3	25.0	34.5	MR
Wahoo	19.1	17.7	40	55	3.0	43.3	35.0	S
#+ CDC Buteo	27.1	47.3	25	35	3.3	43.3	35.5	S
+ MT0423	23.3	55.3	25	60	3.0	20.0	36.7	MR
Pryor	27.0	42.2	70	65	4.0	11.7	43.2	MR
Tiber	18.7	38.5	40	70	3.7	50.0	43.4	S
Genou	14.8	35.7	50	60	3.0	60.0	44.1	S
CDC Falcon	26.7	54.6	45	83	3.3	43.3	50.4	S
+ MTCL0486	16.5	50.7	70	70	3.7	46.7	50.8	S
Hyalite (CL, HWW)	52.1	78.0	40	70	3.0	53.3	58.7	VS
Morgan	34.8	63.4	80	85	3.3	60.0	64.6	VS
NuSky (HWW)	40.9	82.3	60	80	4.0	70.0	66.6	VS
BigSky	52.9	86.0	60	68	3.7	80.0	69.3	VS
Neeley	47.9	71.7	70	85	4.0	73.3	69.6	VS
MT02113	29.9	81.9	80	85	3.3	71.7	69.7	VS
NuWest (HWW)	47.2	82.6	80	90	4.0	80.0	76.0	VS
Bond CL	33.3	73.8	100	95	3.3	80.0	76.4	VS
Paul	66.3	80.0	80	90	3.3	75.0	78.3	VS
Above (CL)	44.4	80.7	100	95	3.3	86.7	81.3	VS
MTW01133	62.5	92.9	100	95	3.7	93.3	88.7	VS
<b>Average</b>	<b>19.1</b>	<b>36.4</b>	<b>35.2</b>	<b>45.4</b>	<b>2.3</b>	<b>31.9</b>	<b>33.6</b>	
<b>LSD (0.05)</b>	<b>15.8</b>	<b>14.5</b>			<b>1.1</b>	<b>45.2</b>		

**Table 8. 2006 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Stem Solidness (5-25)**

Cultivar/Line	Bozeman	Havre	Conrad	3 Loc Avg
<b>Rampart</b>	<b>22.7**</b>	<b>22.3**</b>	<b>23.1**</b>	<b>22.7**</b>
<b>Vanguard</b>	19.0	<b>21.1*</b>	<b>20.9*</b>	20.3
<b>Bynum (CL)</b>	19.9	19.9	19.7	19.8
<b>Genou</b>	19.9	18.8	19.5	19.4
+ <b>MTS04114 (HWW)</b>	20.3	17.7	19.7	19.2
+ <b>MTS04120</b>	19.7	19.1	18.9	19.2
<b>MT1159CL (CL)</b>	13.2	16.7	14.3	14.6
# <b>Carter (BZ9W02-2060)</b>	14.2	14.4	14.5	14.4
<b>Ledger</b>	11.5	13.1	10.3	11.6
<b>Morgan</b>	5.9	5.1	5.1	5.4
<b>Neeley</b>	5.0	5.3	5.0	5.1
<b>Average</b>	<b>15.6</b>	<b>15.7</b>	<b>15.5</b>	<b>15.6</b>
<b>LSD (0.05)</b>	<b>2.4</b>	<b>2.3</b>	<b>2.2</b>	<b>1.3</b>
<b>C.V. (%)</b>	<b>8.9</b>	<b>8.6</b>	<b>8.3</b>	<b>8.8</b>
<b>P-value (Varieties)</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>	<b>&lt;.0001</b>

Locations were non-significant (P= <.1804)

+ = new for 2006 # = paid entry

\*\* = 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)