

<u>PROJECT TITLE:</u>	2005 Intra-State Winter Wheat Variety Performance		
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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 2005 Intrastate Winter Wheat Evaluation nursery was grown at Bozeman, Havre, Huntley, Kalispell, Moccasin, and Sidney, Montana and Williston, North Dakota.

The 2005 Montana winter wheat crop performance across the eight intrastate trial locations was more near to expected performance than it has been in the past few years. This can be attributed to more moderate levels of precipitation and winter survival and no devastating disease or insect infestations.

Newly released Yellowstone (MT00159) continued its exceptional yield performance across the eight trial locations with statewide mean **yield** 78.4 bu/a and having only one location, Havre, where it was not statistically similar to the highest yielding variety in the nursery (Table 1). Jagalene, the name variety with the next highest statewide yield, only exceeded Yellowstone's yield at Havre, by 0.3 of a bu./a, and it was similar in yield to Yellowstone at only four locations. Five MAES development lines ranked in the over all locations top ten for average yield. The The varieties Jagalene, a widely adapted early maturing variety, and NuHorizon (HWWW) repeated as the top two varieties for highest overall mean **test weights** with statewide averages of 62.7 and 62.6 lbs/bu, respectively (Table 2). Rampart, Bynum (Clearfield type Rampart) and MTS0360 had the high mean **protein** contents with mean protein levels of 14.0% or more (Table 3). Winter wheat plant heights were near average for all location with Sidney have the shortest mean height, 28.6 inches, and Bozeman the tallest mean height at 41.8 inches. Norstar was the tallest variety and GM10006 the shortest in **plant height** (Table 4). Kalispell continues to have the earliest **heading date** and Bozeman the latest (Table 5). There was only one entry, MT1159CL(IMI) that had a two location mean **winter survival** score less than 55% and the overall average was 76% (Table 6). Intrastate trials at Bozeman, Kalispell and Havre were evaluated for disease infestations and the rating a presented in Table 7.

SUMMARY:

The environmental conditions across the intra-state winter wheat locations were more near average. Therefore there were not any extreme agronomic performance results.

FUTURE PLANS:

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

Table 1. 2005 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Yield (bu/a)

Cultivar/Line	Bozeman LAT	Havre LAT	Sidney LAT	Williston LAT	Kalispell RCB	Moccasin LAT	Huntley LAT	Conrad LAT	8 Loc Avg
Yellowstone, MT00159	113.1*	59.2	52.6*	68.1*	126.0*	46.5*	74.2*	92.4*	78.4**
MT9982-65	115.3*	51.2	50.9*	68.1*	126.3*	44.2	71.4*	91.7*	78.2*
MT9982-53	109.3	53.9	56.2*	66.8*	122.9*	43.0	69.5	91.7*	76.1*
# Jagalene	110.5	59.5	47.0	61.3	121.8*	43.9	73.5*	82.6	75.1*
MT0097	106.2	52.4	52.9*	64.9	122.7*	38.8	67.5	84.7	74.3*
+ Hatcher	108.9	55.9	43.4	55.1	99.0	50.6**	75.9*	98.1*	73.2*
MT01148	101.3	61.2	50.9*	58.6	122.5*	35.2	71.7*	89.1	72.9*
+ MT03176	106.4	54.1	47.6	61.4	113.5	39.4	67.4	85.0	72.7*
Promontory	107.7	45.9	39.4	51.8	130.7**	42.8	71.7*	91.5*	72.6*
# NuFrontier (HWW)	108.9	56.3	46.2	59.1	109.6	43.1	69.4	86.4	72.4*
MDM, WA7936 (HWW)	105.3	54.8	41.9	52.0	126.0*	34.5	66.5	84.0	72.2*
+ MT03177	105.1	58.2	46.0	59.4	126.6*	34.3	62.5	83.3	72.1*
Millenium	121.5**	54.6	51.4*	65.6*	85.8	42.5	68.7	79.4	71.2*
Wahoo	113.2*	55.8	53.9*	65.5	68.7	42.3	75.5*	88.9	70.7*
# NuHorizon (HWW)	105.7	65.1*	45.9	58.9	89.4	42.2	69.0	81.7	70.0*
Quantum 542	110.0	49.6	48.5	63.0	105.8	34.5	66.4	84.3	69.6*
# Ledger	111.0	64.5*	38.8	54.7	90.1	40.5	66.1	84.3	69.5*
MT02113	113.2*	59.4	49.4*	64.4	45.2	44.2	74.4*	100.9**	69.4*
+ MTCL0316 (IMI)	107.2	59.5	44.4	59.3	81.6	40.7	66.9	90.7*	69.2*
CDC Falcon	98.6	63.7*	51.8*	65.4	70.0	39.0	72.6*	84.4	68.4*
# Pryor	96.6	64.3*	57.1**	62.6	54.7	42.5	77.6**	96.9*	68.4*
+ Bond CL (IMI)	114.1*	74.2**	40.3	54.6	59.4	45.7	69.3	87.4	68.3*
Bighorn	99.1	58.5	47.0	62.2	95.2	39.7	66.0	80.5	68.0*
Bauermeister	110.1	52.5	44.9	56.4	104.8	33.7	68.4	85.3	67.8*
#+ BZ9W02-2060	107.7	60.7	48.6	62.0	68.1	38.3	69.2	81.6	67.6*
Jerry	97.1	49.8	56.0*	71.1*	81.3	38.8	64.7	77.5	67.3*
+ MTCL0306 (IMI, HWW)	112.6*	53.0	43.8	59.0	65.4	41.6	67.4	85.5	66.0*
Rocky	104.6	59.8	47.4	60.3	65.9	37.7	64.9	84.8	65.6*
+ MT0383	102.8	64.2*	44.5	64.9	46.3	40.7	67.1	88.8	64.9
MT02136	108.7	54.0	56.4*	69.6*	23.1	43.3	68.8	89.3	64.6
+ MTS0360	96.3	53.4	37.7	52.9	110.5	33.9	58.8	71.1	64.5
Vanguard	95.0	62.3*	36.4	55.2	90.0	32.1	61.4	72.1	63.4
MTW02111 (HWW)	101.5	63.1*	54.3*	53.2	36.2	37.2	63.5	96.8*	63.1
MTW01133	104.4	61.2	51.5*	60.8	22.0	43.4	72.4*	90.7*	62.9
Rampart	96.2	59.2	39.9	53.3	93.4	34.9	57.4	69.9	62.7
Genou	93.7	62.7*	41.0	55.2	68.4	33.9	59.9	86.0	62.6
Above (IMI)	110.1	57.1	37.5	46.8	57.7	42.2	66.2	84.1	62.2
+ MTCL0318 (IMI)	95.9	51.0	30.1	50.4	108.0	32.0	55.9	74.3	62.2
Morgan	99.2	46.4	51.1*	71.2**	34.4	37.7	67.8	83.4	61.5
Paul	104.0	58.2	54.0*	64.9	12.1	41.1	69.0	87.3	61.2
Tiber	94.7	48.0	36.5	56.2	74.9	35.1	58.7	79.4	60.7
#+ GM10006 (HWW)	102.7	37.5	42.6	51.6	59.6	39.3	64.1	81.7	60.5
+ MTS0333	98.1	52.1	33.4	56.7	72.0	34.4	56.5	74.2	59.1
NuWest (HWW)	97.9	56.8	50.3*	60.0	24.5	38.5	64.6	83.8	59.1
Neeley	103.2	50.9	46.8	57.8	27.4	35.2	67.8	82.4	58.0
NuSky (HWW)	95.4	49.3	51.2*	55.0	25.3	38.0	61.6	84.6	58.0
BigSky	94.1	47.7	48.3	56.5	40.5	34.4	57.7	82.9	57.6
MT1159CL (IMI)	89.2	48.2	19.9	45.5	85.4	33.5	56.3	70.7	56.2
Norstar	80.0	47.4	52.9*	61.6	37.2	28.5	51.3	62.8	51.9
Average	103.7	55.9	46.1	59.4	78.1	39.0	66.4	84.3	66.6
LSD (0.05)	9.3	12.4	8.5	5.7	10.9	4.2	6.5	10.4	13.0
C.V. (%)	5.3	12.6	10.6	5.4	13.7	6.4	6.1	7.2	34.3
P-value (Varieties)	<.0001	0.0007	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0049

+ = new for 2005 # = 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)

Table 2. 2005 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Test Weight (lb/bu)

Cultivar/Line	Bozeman LAT	Havre LAT	Sidney LAT	Williston RCB	Kalispell 1 rep	Moccasin RCB	Huntley LAT	Conrad 1 rep	8 Loc Avg
# Jagalene	62.2**	62.5*	63.5*	63.3*	62.8	59.8*	62.4	64.7	62.7**
# NuHorizon (HWW)	60.9	62.5**	62.8	63.3	63.2	60.1**	62.2	65.6	62.6*
# NuFrontier (HWW)	61.2	61.0	61.6	62.2	64.3	57.8	62.0	65.1	61.9*
#+ GM10006 (HWW)	61.4	62.4*	63.3*	64.2**	54.9	59.2*	63.8**	65.3	61.8*
Promontory	62.1*	61.6*	62.8	62.3	61.6	57.0	62.9*	64.2	61.8*
Millenium	60.8	62.5*	62.0	62.5	60.9	58.2	60.9	63.5	61.4*
+ MTCL0318 (IMI)	61.0	61.4*	61.3	61.7	64.2	57.4	60.3	63.5	61.4*
Rocky	60.7	62.0*	61.5	62.4	61.8	57.2	60.9	64.4	61.4*
+ MTCL0316 (IMI)	61.4	62.3*	62.3	62.9	59.1	56.6	60.8	63.4	61.1*
+ Hatcher	60.4	60.8	61.8	62.4	59.4	57.7	60.9	64.3	61.0*
Rampart	60.5	60.3	61.8	60.9	63.8	56.1	60.8	63.2	60.9*
Bighorn	59.9	61.2*	61.1	61.9	59.2	56.9	61.2	64.2	60.7*
# Ledger	61.1	61.7*	60.8	61.5	58.2	58.2	59.9	64.2	60.7*
Vanguard	60.8	60.8	62.0	60.9	62.3	56.7	60.1	62.0	60.7*
#+ BZ9W02-2060	58.4	61.1*	62.0	61.9	61.0	55.2	61.5	63.8	60.6*
MT9982-53	60.1	59.9	61.1	61.9	62.7	56.6	60.0	62.4	60.6*
Quantum 542	60.3	60.4	62.3	62.4	60.1	55.6	60.5	62.9	60.6*
MT0097	59.3	59.9	61.4	61.2	63.6	56.3	60.4	61.5	60.5*
MT01148	59.0	59.3	61.1	60.6	64.5	54.1	61.1	63.2	60.4*
+ MTS0333	60.5	59.4	60.8	60.6	59.1	56.6	59.7	63.7	60.1
Genou	60.1	60.3	62.4	62.0	55.5	55.5	59.4	64.5	60.0
MT9982-65	59.1	59.9	61.2	60.7	61.7	56.0	60.1	61.5	60.0
Tiber	61.0	60.9	62.5	62.6	54.1	55.7	60.4	63.0	60.0
Above (IMI)	61.3	61.7*	61.5	61.2	52.5	57.2	60.2	63.2	59.9
+ Bond CL (IMI)	60.8	61.2*	60.8	61.5	53.7	58.3*	60.3	62.7	59.9
+ MTCL0306 (IMI, HWW)	60.4	61.1	61.6	61.8	53.6	56.6	61.1	62.8	59.9
Yellowstone, MT00159	59.0	59.5	61.0	60.1	61.9	56.2	59.5	62.0	59.9
+ MT0383	58.9	60.7	62.1	62.1	53.7	55.3	60.7	63.2	59.6
Norstar	61.2	59.3	61.4	62.8	52.1	58.2	61.6	59.7	59.5
CDC Falcon	57.4	60.7	62.0	61.7	54.3	54.9	59.9	63.6	59.3
+ MT03176	58.0	58.3	59.8	60.3	61.3	54.3	60.3	61.8	59.3
BigSky	59.8	60.2	63.8**	62.5	47.1	56.1	60.2	62.9	59.1
Jerry	58.7	59.5	60.8	61.2	56.7	53.6	59.4	62.2	59.0
+ MTS0360	57.2	58.0	60.1	59.1	63.2	54.4	59.5	60.7	59.0
MT1159CL (IMI)	58.4	59.6	59.0	59.9	59.7	55.2	57.8	61.6	58.9
Morgan	58.9	58.5	62.2	61.5	48.7	56.1	60.8	62.9	58.7
+ MT03177	56.5	58.0	60.2	59.4	62.4	52.8	57.8	60.1	58.4
MTW02111 (HWW)	59.2	59.4	61.2	60.3	50.4	53.9	60.4	62.7	58.4
# Pryor	57.2	59.1	61.3	60.6	49.7	54.2	60.6	64.3	58.4
MTW01133	58.8	60.7	61.8	61.8	42.1	58.4*	59.8	62.0	58.2
Neeley	59.9	61.1*	62.0	61.2	43.8	53.5	61.5	62.2	58.2
NuSky (HWW)	59.1	59.4	61.2	60.8	42.8	57.4	60.5	61.7	57.9
Wahoo	57.8	58.9	60.1	61.4	48.7	55.3	58.3	62.4	57.9
MT02113	58.4	58.9	61.2	60.3	47.7	53.9	59.6	62.6	57.8
NuWest (HWW)	59.2	60.8	61.4	60.6	39.4	56.2	59.9	60.9	57.3
Paul	56.9	58.5	61.1	59.1	43.6	54.0	59.7	61.8	56.8
MT02136	57.2	58.2	60.1	59.7	42.5	52.9	55.9	62.3	56.1
Bauermeister	54.7	57.2	58.2	56.0	56.0	49.8	57.3	58.8	56.0
MDM, WA7936 (HWW)	54.5	56.4	56.6	55.4	55.6	50.5	58.8	59.4	55.9
Average	59.4	60.2	61.3	61.2	55.9	55.9	60.3	62.7	59.6
LSD (0.05)	0.7	1.4	0.7	1.2		1.8	1.3		2.5
C.V. (%)	0.6	1.3	0.7	1.0		1.6	1.2		4.3
P-value (Varieties)	<.0001	<.0001	<.0001	<.0001		<.0001	<.0001		<.0001

+ = new for 2005 # = 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)

Table 3. 2005 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Protein (%)

Cultivar/Line	Bozeman Bulk	Havre Bulk	Sidney Bulk	Williston RCB	Kalispell Bulk	Moccasin Bulk	Huntley Bulk	Conrad Bulk	8 Loc Avg
+ MTS0360	16.7	14.6	10.0	14.1	13.4	17.6	11.7	15.1	14.2**
+ MTCL0318 (IMI)	15.6	13.9	10.9	14.4	13.0	16.5	12.1	15.2	14.0*
Rampart	15.9	13.7	10.6	14.3	12.6	18.4	11.7	14.5	14.0*
+ MTS0333	15.3	14.2	10.0	13.9	13.7	17.3	11.3	13.9	13.7*
Quantum 542	14.9	13.5	10.3	13.8	13.6	17.2	12.3	13.7	13.7*
BigSky	14.9	14.3	9.4	14.3	13.1	17.1	11.6	13.7	13.6*
Jerry	14.7	14.0	9.5	13.9	12.8	17.9	11.5	13.9	13.5*
Tiber	15.1	12.7	10.9	14.2	12.2	16.5	13.4	13.3	13.5*
Vanguard	15.9	12.4	9.9	14.3	12.0	16.9	11.8	14.5	13.5*
Neeley	15.1	14.0	9.8	13.7	12.7	16.6	11.1	13.2	13.3
Millenium	14.1	13.6	11.5	13.7	11.4	16.5	11.3	13.7	13.2
Genou	15.4	12.3	9.2	13.7	12.7	17.2	12.7	12.3	13.2
#+ GM10006 (HWW)	14.8	12.9	10.2	13.2	12.3	16.3	11.5	14.3	13.2
MT01148	14.8	13.9	9.4	13.2	12.5	17.3	10.9	13.1	13.1
Norstar	14.9	13.2	8.2	13.4	12.5	16.3	12.1	14.5	13.1
+ MT0383	14.5	13.7	10.1	13.5	12.6	15.5	11.3	13.6	13.1
Paul	15.1	13.5	9.8	13.1	14.3	14.9	10.2	13.3	13.0
MT0097	14.5	13.4	9.0	13.3	11.5	16.3	12.6	13.5	13.0
MT9982-53	14.5	13.9	9.8	13.1	11.9	16.7	11.1	13.1	13.0
Morgan	14.3	14.3	8.8	13.6	12.9	15.5	11.5	13.1	13.0
Wahoo	14.3	11.9	9.3	13.3	12.8	17.9	11.0	13.3	13.0
MT1159CL (IMI)	14.2	12.4	11.3	12.3	11.8	16.2	11.9	13.4	12.9
Yellowstone, MT00159	14.4	12.7	9.4	12.8	13.1	15.5	12.3	13.0	12.9
# Jagalene	14.2	12.7	11.9	12.7	12.4	14.7	10.5	14.0	12.9
+ MTCL0306 (IMI, HWW)	14.4	12.6	9.2	13.2	12.3	16.3	10.8	14.3	12.9
NuWest (HWW)	14.6	12.8	8.3	12.8	13.2	15.7	11.2	14.1	12.8
+ MT03177	14.9	12.9	9.0	13.0	10.7	16.2	12.6	13.3	12.8
Bighorn	14.7	13.2	9.3	12.8	11.2	16.4	11.9	13.0	12.8
#+ BZ9W02-2060	14.5	11.7	9.5	13.3	12.1	16.3	10.9	13.9	12.8
Above (IMI)	13.5	13.0	10.7	12.3	12.3	15.5	11.2	13.4	12.7
MDM, WA7936 (HWW)	15.1	13.8	8.7	13.7	11.4	16.3	10.8	11.8	12.7
MTW01133	14.8	13.7	9.2	12.4	11.6	15.4	10.5	13.9	12.7
Bauermeister	15.0	12.6	9.8	13.1	11.3	16.2	11.4	12.0	12.7
CDC Falcon	14.7	11.4	9.8	12.4	11.5	16.2	12.1	12.7	12.6
+ MT03176	14.4	12.7	9.2	13.0	11.6	16.5	9.6	13.7	12.6
+ MTCL0316 (IMI)	13.8	11.4	9.7	13.1	11.3	16.2	11.9	12.9	12.5
NuSky (HWW)	14.9	11.7	9.9	12.6	12.1	14.5	11.6	12.8	12.5
# Ledger	13.7	11.7	9.2	12.1	12.9	15.2	12.1	13.1	12.5
MT02136	14.2	12.4	8.0	12.1	14.3	15.7	11.1	12.1	12.5
MT9982-65	13.9	13.1	9.3	13.0	11.7	15.6	10.1	13.0	12.5
Rocky	14.3	12.2	8.6	13.4	12.8	15.3	10.5	12.6	12.5
MTW02111 (HWW)	14.1	12.0	8.8	12.4	12.3	16.2	12.0	11.8	12.5
# Pryor	14.9	13.0	8.0	12.2	12.3	17.5	9.4	12.1	12.4
Promontory	13.2	13.0	9.8	12.6	11.1	16.7	10.2	12.7	12.4
MT02113	13.9	10.7	9.1	12.2	13.3	14.7	10.6	12.6	12.1
# NuFrontier (HWW)	13.4	12.0	8.3	11.9	10.6	16.1	11.0	12.2	11.9
# NuHorizon (HWW)	14.1	11.4	8.8	12.5	10.6	15.1	9.4	13.3	11.9
+ Hatcher	12.8	11.7	10.0	12.3	11.8	14.2	9.5	12.6	11.9
+ Bond CL (IMI)	12.7	11.4	10.0	11.7	11.7	15.0	9.1	12.7	11.8
Average	14.5	12.9	9.6	13.1	12.3	16.2	11.2	13.3	12.9
LSD (0.05)				0.7					0.7
C.V. (%)				2.8					5.5
P-value (Varieties)				<.0001					<.0001

+ = new for 2005 # = 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)

Table 4. 2005 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Plant Height (in)

Cultivar/Line	Bozeman LAT	Havre LAT	Sidney LAT	Williston LAT	Kalispell RCB	Moccasin LAT	Huntley LAT	Conrad 1 rep	8 Loc Avg
Above (IMI)	41.3	28.9	24.2	30.6	37.3	37.5	39.3	36	34.4
Bauermeister	39.4	29.0	28.4	30.4	39.1	30.3	40.0	39	34.4
Bighorn	38.7	28.6	26.2	28.9	36.9	32.1	39.1	35	33.2
BigSky	46.1	35.8	30.5	36.3	44.6	38.5	46.5	41	39.9
+ Bond CL (IMI)	40.2	30.1	27.2	30.6	42.0	35.5	39.4	37	35.2
#+ BZ9W02-2060	38.1	27.3	24.1	27.7	34.6	30.6	34.1	35	31.4
CDC Falcon	36.0	29.5	27.0	28.1	34.3	29.4	38.8	34	32.1
Genou	43.5	28.3	29.6	33.2	42.4	37.6	42.7	42	37.4
#+ GM10006 (HWW)	32.5	24.1	25.1	27.0	31.2	31.6	32.9	33	29.7
+ Hatcher	38.3	25.2	25.0	28.4	37.3	32.7	37.0	37	32.6
# Jagalene	39.4	27.6	27.9	29.9	39.4	32.8	37.0	36	33.7
Jerry	47.1	33.6	30.7	37.5	44.9	39.0	47.8	42	40.3
# Ledger	40.4	28.7	25.6	30.5	38.6	32.9	39.4	35	33.9
MDM, WA7936 (HWW)	40.6	31.4	28.3	30.0	39.4	33.0	37.5	39	34.9
Millenium	44.2	28.9	30.4	33.1	43.7	36.2	42.9	40	37.4
Morgan	43.1	35.7	31.9	34.6	40.3	32.7	44.1	41	37.9
MT0097	43.0	31.6	28.2	30.2	40.2	33.6	42.3	41	36.3
MT01148	43.7	29.8	27.8	32.2	43.6	34.0	42.0	39	36.5
MT02113	40.4	26.3	25.4	31.8	37.9	34.3	42.7	40	34.8
MT02136	42.7	31.3	28.6	31.6	37.9	33.3	40.0	36	35.2
+ MT03176	42.9	29.3	29.5	32.8	40.8	37.7	41.6	39	36.7
+ MT03177	43.2	35.3	27.4	31.0	41.9	35.4	45.1	42	37.7
+ MT0383	39.3	30.9	28.4	30.6	37.4	34.5	39.1	35	34.4
MT1159CL (IMI)	40.2	27.6	27.1	30.4	41.3	33.0	39.6	38	34.7
MT9982-53	40.1	30.3	29.8	33.2	40.0	34.7	43.1	38	36.1
MT9982-65	41.7	32.3	28.5	32.5	39.2	34.8	42.7	39	36.3
+ MTCL0306 (IMI, HWW)	41.8	33.8	27.4	31.7	40.3	36.2	39.3	38	36.1
+ MTCL0316 (IMI)	43.7	33.6	29.6	32.0	41.2	37.0	42.0	39	37.3
+ MTCL0318 (IMI)	44.6	31.8	30.7	33.5	44.2	35.3	40.8	40	37.6
+ MTS0333	45.0	32.4	29.5	32.4	40.3	36.0	42.4	37	36.9
+ MTS0360	41.9	32.3	27.7	30.9	40.3	35.9	40.3	39	36.0
MTW01133	36.2	27.8	25.8	29.2	32.0	33.9	36.5	35	32.1
MTW02111 (HWW)	41.6	31.9	27.3	28.9	41.1	33.3	39.9	39	35.4
Neeley	45.0	30.7	30.1	33.5	42.3	35.5	41.3	42	37.5
Norstar	51.4	39.5	39.1	41.9	52.9	40.7	54.7	54	46.8
# NuFrontier (HWW)	40.7	28.8	28.5	30.7	40.2	35.9	41.9	36	35.3
# NuHorizon (HWW)	36.4	27.8	25.4	28.8	33.2	31.6	34.9	31	31.1
NuSky (HWW)	41.9	36.5	30.4	34.1	41.7	34.8	41.8	41	37.8
NuWest (HWW)	42.6	33.1	29.9	33.8	42.8	34.9	42.7	41	37.6
Paul	41.2	28.7	30.3	31.5	36.5	32.4	38.3	37	34.5
Promontory	40.7	27.8	26.1	29.5	38.1	34.6	40.6	38	34.4
# Pryor	37.0	29.0	27.0	30.2	31.2	30.6	38.4	36	32.4
Quantum 542	44.5	33.4	31.1	34.8	43.2	36.5	45.8	42	38.9
Rampart	43.6	32.9	31.5	32.0	41.5	36.1	43.2	40	37.6
Rocky	47.0	33.5	31.1	32.1	44.0	38.0	44.4	42	39.0
Tiber	47.8	36.9	32.8	35.3	46.7	38.8	48.3	45	41.5
Vanguard	45.7	33.8	29.7	34.1	45.1	36.9	43.4	42	38.8
Wahoo	41.7	29.3	29.2	30.5	37.3	34.2	39.9	36	34.8
Yellowstone, MT00159	41.2	28.2	28.6	32.6	38.8	34.9	42.2	36	35.3
Average	41.8	30.8	28.6	31.8	40.0	34.7	41.2	38.7	36.0
LSD (0.05)	2.0	4.7	2.4	2.1	3.9	3.0	2.2		1.5
C.V. (%)	2.8	8.9	4.9	3.9	6.1	5.0	3.3		4.3
P-value (Varieties)	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001		<.0001

+ = new for 2005 # = 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)

Table 5. 2005 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Heading Date (Julian)

Cultivar/Line	Bozeman LAT	Havre LAT	Sidney LAT	Williston LAT	Kalispell RCB	Moccasin LAT	Huntley LAT	Conrad 1 rep	8 Loc Avg
Above (IMI)	166.0	154.4	156.3	153.3	150.0	166.4	152.0	162	157.5
Bauermeister	178.5	159.5	168.3	162.7	162.7	178.6	165.7	170	168.2
Bighorn	172.0	164.9	159.9	157.2	155.3	171.9	157.0	166	163.0
BigSky	171.7	163.4	160.2	157.3	155.7	172.7	158.3	166	163.2
+ Bond CL (IMI)	166.2	158.0	156.5	152.2	150.0	166.3	151.9	162	157.9
#+ BZ9W02-2060	170.9	161.9	160.1	156.4	153.0	173.0	155.7	165	162.0
CDC Falcon	171.0	161.9	158.7	154.4	154.3	171.7	157.7	165	161.8
Genou	171.7	166.3	160.4	155.9	155.3	172.0	156.7	167	163.1
#+ GM10006 (HWW)	167.5	162.4	156.6	153.9	152.3	169.4	156.0	164	160.3
+ Hatcher	167.7	158.8	157.8	156.9	151.0	168.3	153.3	163	159.6
# Jagalene	169.3	159.1	156.3	152.9	153.0	170.0	154.3	165	160.0
Jerry	172.7	163.7	159.8	156.7	155.0	172.6	157.9	166	163.1
# Ledger	169.5	163.5	160.6	157.0	152.3	171.1	157.7	165	162.1
MDM, WA7936 (HWW)	177.5	171.1	169.0	166.2	164.3	177.6	166.0	172	170.5
Millenium	169.8	161.5	157.8	152.8	153.0	170.3	155.7	163	160.5
Morgan	173.6	166.0	160.2	158.6	159.0	173.7	162.4	168	165.2
MT0097	173.1	162.6	161.6	159.8	154.7	173.3	158.0	168	163.9
MT01148	173.2	165.4	162.6	159.2	157.0	174.3	160.4	168	165.0
MT02113	172.4	163.5	161.6	158.9	154.7	172.4	159.0	167	163.7
MT02136	170.3	162.2	157.4	155.3	153.0	170.0	156.0	165	161.1
+ MT03176	169.3	163.0	157.3	155.8	150.7	169.7	155.0	163	160.5
+ MT03177	171.0	163.0	160.0	157.0	152.0	172.0	157.0	165	162.1
+ MT0383	171.7	162.3	160.1	158.0	155.0	171.7	157.3	166	162.8
MT1159CL (IMI)	171.2	162.9	164.3	160.2	154.7	172.3	159.3	166	163.9
MT9982-53	173.7	167.9	161.9	158.3	156.7	173.1	160.7	169	165.2
MT9982-65	172.7	166.8	160.1	158.3	155.0	172.8	158.4	166	163.8
+ MTCL0306 (IMI, HWW)	169.4	162.0	159.2	154.4	153.0	170.3	154.7	164	160.9
+ MTCL0316 (IMI)	168.8	158.7	155.6	154.4	150.3	169.6	154.0	163	159.3
+ MTCL0318 (IMI)	170.0	162.0	161.0	155.6	152.3	171.0	154.3	165	161.4
+ MTS0333	171.7	166.8	163.0	158.6	155.7	173.0	157.7	167	164.2
+ MTS0360	172.9	166.5	163.4	160.5	157.3	174.7	158.7	168	165.2
MTW01133	168.4	160.8	155.4	154.2	152.3	169.0	154.0	163	159.6
MTW02111 (HWW)	174.3	165.8	164.0	162.4	160.0	175.4	162.7	170	166.8
Neeley	173.3	163.2	163.0	162.3	158.3	174.0	161.0	168	165.4
Norstar	177.0	167.1	162.8	162.1	162.0	176.7	162.0	172	167.7
# NuFrontier (HWW)	169.1	161.6	158.0	155.5	150.7	169.7	154.7	164	160.4
# NuHorizon (HWW)	168.0	160.3	157.4	155.7	150.3	168.6	153.6	163	159.6
NuSky (HWW)	172.9	166.5	161.8	158.5	157.7	173.7	160.6	168	165.0
NuWest (HWW)	171.9	164.8	160.7	157.7	155.7	172.3	159.0	168	163.8
Paul	172.7	164.1	161.8	158.5	157.7	173.0	157.9	168	164.2
Promontory	170.5	163.7	160.0	157.4	155.0	172.0	156.7	166	162.7
# Pryor	173.1	164.4	160.9	158.1	156.0	173.0	157.7	165	163.5
Quantum 542	169.8	161.5	158.4	155.1	152.3	171.9	156.7	164	161.2
Rampart	171.1	165.5	160.7	157.1	155.3	173.3	156.4	167	163.3
Rocky	170.0	162.1	156.6	155.6	154.3	170.7	155.0	165	161.2
Tiber	172.9	163.5	162.5	159.7	156.7	173.7	160.0	168	164.6
Vanguard	171.5	165.5	160.6	157.6	153.0	172.6	157.6	166	163.1
Wahoo	168.7	160.4	156.6	153.6	151.3	169.4	155.7	163	159.8
Yellowstone, MT00159	172.6	164.9	160.1	158.2	155.3	171.9	160.0	166	163.6
Average	171.3	163.2	160.2	157.3	154.7	172.0	157.6	166.0	162.8
LSD (0.05)	0.8	2.5	1.5	1.6	2.0	1.1	1.0		1.1
C.V. (%)	0.3	0.9	0.6	0.6	0.8	0.4	0.4		0.7
P-value (Varieties)	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001		<.0001

+ = new for 2005 # = 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)

Table 6. 2005 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Winter Survival (%)

Cultivar/Line	Sidney RCB	Williston LAT	2 Loc Avg.
	23-May	24-May	
Norstar	91.8**	91.7*	91.8**
Morgan	91.8*	90.7*	91.2*
NuWest (HWW)	90.1*	91.3*	90.7*
Jerry	90.1*	90.9*	90.5*
MT0097	88.1*	89.6*	88.9*
Paul	86.6*	90.7*	88.7*
NuSky (HWW)	83.4*	92.8**	88.1*
CDC Falcon	83.1*	89.8*	86.4*
MTW01133	83.3*	88.7*	86.0*
BigSky	83.1*	87.1	85.1*
Yellowstone, MT00159	85.0*	83.4	84.2*
MT02136	84.9*	83.4	84.1*
Rocky	83.6*	83.5	83.6*
# Pryor	79.8*	86.7	83.3*
MT9982-65	80.2*	84.9	82.5*
Wahoo	76.7*	88.1	82.4*
MT01148	79.9*	83.2	81.5*
Quantum 542	81.7*	81.3	81.5*
#+ BZ9W02-2060	75.0	86.6	80.8*
# NuHorizon (HWW)	79.9*	79.4	79.6*
+ MT03176	75.2	82.8	79.0*
+ MT0383	73.6	84.3	78.9*
+ MT03177	75.0	80.6	77.8*
MT9982-53	68.7	86.8	77.8*
+ MTCL0306 (IMI, HWW)	70.1	84.8	77.4*
Millenium	69.8	84.5	77.2*
# Jagalene	76.8*	77.2	77.0*
Bighorn	74.8	78.3	76.6*
Genou	68.4	84.2	76.3*
+ MTCL0316 (IMI)	74.9	77.3	76.1*
Tiber	63.3	88.0	75.7
# NuFrontier (HWW)	74.7	75.8	75.3
MTW02111 (HWW)	68.5	80.5	74.5
Neeley	61.7	81.9	71.8
Bauermeister	61.9	78.8	70.4
+ MTS0360	61.5	78.5	70.0
MT02113	58.4	80.3	69.3
# Ledger	57.9	80.2	69.1
Vanguard	60.1	77.7	68.9
#+ GM10006 (HWW)	61.7	72.6	67.2
+ Bond CL (IMI)	54.9	77.9	66.4
Rampart	46.7	81.3	64.0
+ Hatcher	54.8	73.0	63.9
+ MTS0333	44.9	81.7	63.3
Above (IMI)	49.9	74.7	62.3
Promontory	48.5	70.0	59.2
+ MTCL0318 (IMI)	35.0	76.5	55.7
MDM, WA7936 (HWW)	48.2	63.0	55.6
MT1159CL (IMI)	15.5	53.2	34.3
Average	70.1	81.8	76.0
LSD (0.05)	15.2	6.2	15.9
C.V. (%)	13.3	4.5	10.4
P-value (Varieties)	<.0001	<.0001	<.0001

+ = new for 2005 # = 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)

Table 7. 2005 Intrastate Winter Wheat Test (Exp. 3501): Disease Summary

Cultivar/Line	Stripe Rust ^{1/}				Stem Rust ^{2/} Severity Ft.Ellis	Stagonospora blotch ^{3/} Havre		Eyespot ^{4/} Kalispell		Fusarium ^{5/} Crown Rot Bozeman Reaction	
	Bozeman + Kalispell		Kalispell foliage %	Bozeman Score (0-4)		Score (0-4)	Reaction	Severity %	Reaction		
	Score (0-4)	Reaction									
Above (IMI)	3.2	VS	56.7	3.3	R	3.0	S	17.9	MR	MS	
Bauermeister	0.8	R	10.0	0.7	S	2.0	MR	13.7	R		
Bighorn	0.0	R	0.7	0.0	R	3.4	S	23.1	MR		
BigSky	2.8	S	85.0	2.3	R	2.3	MR	14.6	R		
+ Bond CL (IMI)	3.2	VS	95.0	2.3	S	2.7	S	35.2	VS		
#+ BZ9W02-2060	2.0	S	40.0	2.0	R	1.0	R	31.8	S		MS
CDC Falcon	2.2	S	63.3	1.3	R	1.0	R	22.2	MR		
Genou	3.5	VS	46.7	4.0	S	3.0	S	16.5	MR		
#+ GM10006 (HWW)	3.2	VS	75.0	2.3	R	5.0	VS	20.6	MR		
+ Hatcher	2.5	S	50.0	2.0	R	2.0	MR	19.8	MR		S MR
# Jagalene	1.0	MR	3.3	2.0	R	2.4	MR	18.0	MR		
Jerry	0.8	R	11.7	0.7	R	1.3	R	40.9	VS		
# Ledger	2.2	S	10.0	3.3	S	4.0	VS	29.4	S		
MDM (HWW)	0.0	R	4.0	0.0	S	1.0	R	26.3	S		
Millenium	2.0	S	20.0	2.0	S	3.0	S	31.5	S		
Morgan	2.7	S	78.3	1.3	R	1.7	MR	17.6	MR		
MT0097	0.0	R	3.3	0.0	MR	1.0	R	16.3	MR		
MT01148	1.0	MR	8.3	0.0	R	1.0	R	23.5	MR		
MT02113	3.3	VS	60.0	3.7	S	2.0	MR	24.5	MR		
MT02136	3.7	VS	76.7	3.3	R	2.5	S	36.0	VS	MR	
+ MT03176	0.0	R	5.0	0.0	R	2.4	MR	19.2	MR		
+ MT03177	0.0	R	3.3	0.0	I	2.0	MR	27.3	S		
+ MT0383	3.0	VS	76.7	2.0	I	1.7	MR	25.2	S		
MT1159CL (IMI)	1.0	MR	5.0	2.0	VS	3.0	S	30.0	S		
MT9982-53	0.5	R	5.7	1.0	VS	3.7	VS	24.1	MR		
MT9982-65	1.5	MR	6.7	1.3	S	3.0	S	26.5	S		
+ MTCL0306 (IMI, HW)	3.3	VS	63.3	3.7	R	3.0	S	25.5	S		
+ MTCL0316 (IMI)	2.3	S	30.0	2.7	S	2.0	MR	14.8	R		
+ MTCL0318 (IMI)	1.0	MR	5.0	2.0	I	1.4	R	17.5	MR		
+ MTS0333	2.2	S	25.0	1.7	I	2.7	S	29.4	S	M S MR	
+ MTS0360	0.8	R	8.3	1.3	R	2.5	S	27.0	S		
MTW01133	3.7	VS	83.3	3.3	I	1.0	R	37.4	VS		
MTW02111 (HWW)	3.7	VS	71.7	4.3	S	2.0	MR	21.7	MR		
Neeley	3.8	VS	93.3	3.7	S	2.0	MR	23.3	MR		
Norstar	3.2	VS	88.3	1.7	S	1.0	R	22.8	MR		
# NuFrontier (HWW)	1.0	MR	8.3	0.7	R	3.4	S	29.4	S		
# NuHorizon (HWW)	0.7	R	11.3	0.3	R	1.0	R	33.1	S		
NuSky (HWW)	3.2	VS	70.0	3.3	R	1.3	R	40.2	VS		
NuWest (HWW)	3.2	VS	66.7	3.3	R	2.7	S	21.8	MR		
Paul	3.7	VS	95.0	3.3	R	1.3	R	20.6	MR	S MR	
Promontory	0.2	R	3.0	0.3	S	4.5	VS	26.9	S		
# Pryor	2.3	S	63.3	1.7	S	2.0	MR	18.3	MR		
Quantum 542	0.2	R	5.7	0.3	S	3.7	VS	30.8	S		
Rampart	1.2	MR	6.7	1.3	R	3.7	VS	19.3	MR		
Rocky	2.0	S	60.0	1.0	R	3.0	S	31.5	S		
Tiber	3.2	VS	70.0	3.0	S	2.0	MR	14.4	R		
Vanguard	1.2	MR	13.3	1.3	I	3.0	S	15.9	MR		
Wahoo	1.5	MR	11.7	2.0	R	2.4	MR	32.7	S		
Yellowstone	0.3	R	5.0	0.7	VS	3.0	S	27.1	S		
Average	1.9		37.9	1.8		2.4		24.8			

+ = new for 2005 # = paid entry

^{1/} Stripe Rust = Puccinia striiformis var. tritici; Severity Score - 0 = R, 1 = MR, 2 = S, 3 = VS. Kalispell & Bozeman evaluated by Qingwu Xue & W. Grey, respectively.
^{2/} Puccinia striiformis var. tritici Race-100 (virulent on Lemhi, Heines VII, Produra, Yamhill, Stephens, Lee, Fielder, Express, Yr8, Yr9, Clement and Compare)