Title: Montana intrastate winter wheat variety evaluations.

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Objectives: To evaluate new and existing winter wheat cultivars and lines under various dryland growing conditions at Montana and Western North Dakota research centers.. Provide unbiased information on improved winter wheat cultivars for producers to use in the selection of cultivars best suited for their cropping environment.

Results:
The 2009 Montana Intrastate Winter Wheat Nursery was established at Bozeman, Havre, Huntley, Conrad, Kalispell, Moccasin, Sidney, and Williston. The Sidney location was not harvested due to winter kill. Across locations performance means will be high-lighted in this summary.

High yielding cultivars were Yellowstone and Pryor with statewide mean **yields** of 78.4 and 72.3 bu/a, respectively. Yellowstone had the top yield at four locations (Table 1). Jagalene (63.7 lbs/bu) and AP 503 CL2 (63.5 lbs/bu) had the high mean **test weights**. Each was high at two locations (Table 2). Hawken and Ripper had the earliest mean **heading dates** at 159.7 and 160.1. Neeley and Accipiter were the last to head with mean day of 167.4 (Table 3). Carter had the shortest mean **height** at 26.0" and Tiber the tallest at 35.3" (Table 4). High **protein content** was produced by Bynum (14.3%) and Wendy (13.9%). Pryor (11.8%) and Promontory (11.9%) had the low protein content (Table 5). Cultivars Rampart, Bynum and Genou, along with five development lines had **stem solidness** ratings >15.0 (Table 6). The development line BZ9W02-2051, WestBred LLC exhibited a unique **disease resistance** pattern in the St. Paul, MN evaluations. It may be a new mode of resistance. Disease resistance and susceptibility information is presented in Table 7.

Summary:
New cultivars and development lines were among the top performers for yield, test weight, protein content, and stem solidness and plant height.

Funding Summary:
Expenditure information to be provided by OSP. No other grant support for this project

MWBC FY2011 Grant Submission Plans:
It is planned to submit this project for funding consideration in the next fiscal year.

Table 1. 2009 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Yield (bu/a)

Cultivar/Line	Bozeman LAT	Havre LAT	Sidney w interkill	Williston RCB	Kalispell LAT	Moccasin LAT	Huntley LAT	Conrad LAT	7 Loc Avg.
Yellowstone	**116.8****	**40.6***		**50.9****	**99.5***	**51.1****	**106.6****	**83.0***	**78.4****
MT0495	**110.8***	37.9		**49.5***	**93.1***	44.0	**104.4***	81.9	**74.5***
Pryor	102.2	40.3		**43.1***	91.1	**47.5***	**98.4***	**83.6***	72.3
NI04421	98.0	35.6		36.9	87.5	**48.2***	**105.1***	**91.2****	71.8
Neeley	102.2	38.5		**50.4***	**93.9***	42.7	**91.2***	80.4	71.3
Curlew (UT9325-55)	103.7	35.2		40.7	**101.1****	44.0	90.3	**83.5***	71.2
BZ9W02-2051	102.6	39.6		**44.1***	83.9	45.6	**102.5***	78.4	71.0
Wahoo	104.5	**40.4***		**45.9***	87.0	43.5	**92.3***	**82.9***	70.9
CDC Falcon	87.4	**40.6***		**48.4***	91.0	45.3	**98.6***	**84.5***	70.8
MT0742	103.9	**41.7***		**50.3***	88.2	40.9	88.7	80.2	70.6
MT06103	92.3	36.2		**46.9***	89.8	**46.1***	**92.2***	81.4	69.3
Jagalene	88.9	33.2		41.9	**96.6***	42.3	**106.6****	74.9	69.2
MT0861	103.3	38.2		**47.8***	89.8	43.1	81.6	78.5	68.9
Norris (CL)	93.2	38.5		**49.5***	87.4	43.9	**98.3***	71.2	68.9
Accipiter	90.9	**43.5***		**45.2***	91.1	45.4	**93.3***	72.4	68.8
MTS0705	102.3	**42.2***		**45.1***	83.3	41.5	84.2	**83.1***	68.8
Promontory	105.2	36.4		**46.9***	82.2	45.9	88.2	76.8	68.8
MTW0759	96.1	37.7		**48.7***	86.8	**46.7***	84.0	77.4	68.2
Peregrine	88.5	36.7		**48.4***	**92.1***	40.8	84.6	**84.0***	67.9
NuSky (HWW)	85.2	**40.9***		**47.2***	89.0	45.1	**93.0***	73.7	67.7
MT0552	96.2	35.5		39.6	87.9	**46.5***	87.4	79.1	67.5
MTS0532 (HWW)	94.5	38.7		**45.4***	84.6	41.4	84.9	**82.3***	67.4
Hyalite (CL, HWW)	86.4	36.7		**45.1***	86.4	44.3	**99.4***	69.8	66.9
MTS0713	103.9	**43.2***		39.7	84.1	38.3	85.4	73.7	66.9
Overland	85.5	**41.3***		40.9	86.3	42.4	**94.6***	77.5	66.9
Hawken	91.7	31.0		**43.6***	89.9	38.2	88.1	**84.2***	66.7
Carter	106.2	37.8		**45.4***	83.0	44.2	79.3	70.3	66.6
MT0738	99.1	34.0		39.2	88.6	44.6	84.3	76.6	66.6
Ripper	93.0	32.5		41.9	86.5	39.0	**91.2***	**82.4***	66.6
Settler CL	96.3	32.8		36.9	86.7	40.7	**91.9***	80.4	66.5
Ledger	90.8	40.1		**44.8***	88.1	40.7	84.0	75.1	66.2
MTW0785	106.3	35.2		41.8	79.5	40.1	80.0	80.5	66.2
Darrell	80.1	35.3		38.7	**93.2***	43.6	**92.2***	78.1	65.9
Radiant	89.1	39.1		**50.4***	79.4	36.6	87.9	78.1	65.8
Jerry	92.6	36.0		**48.9***	85.6	44.4	78.7	73.9	65.7
MTS0531 (HWW)	94.2	34.0		42.5	78.5	42.7	88.8	79.0	65.7
MTW0782	101.1	35.7		**43.0***	82.4	40.6	77.0	77.0	65.3
Rocky	85.7	40.2		39.1	89.3	**49.0***	73.2	76.6	64.7
MT0754	100.4	36.8		42.7	79.2	42.3	78.5	72.0	64.6
AP 503 CL2	89.5	31.5		39.2	80.8	43.2	86.5	78.9	64.2
Genou	96.7	**45.1****		41.8	79.6	42.3	65.4	78.2	64.2
Wendy (HWW)	81.7	38.1		**45.0***	79.2	40.8	**93.1***	71.7	64.2
Tiber	84.6	36.8		**45.6***	84.1	45.8	74.3	74.6	63.7
MT0766	92.2	38.5		36.2	88.9	37.8	70.5	80.3	63.5
Alice (HWW)	77.6	31.9		40.1	89.5	36.9	**96.8***	70.0	63.3
MTS0721	93.3	37.6		36.1	77.2	41.7	82.3	70.6	62.7
MT0771	101.4	35.3		42.2	75.7	42.6	70.7	69.8	62.5
Rampart	89.5	39.4		40.6	77.3	40.3	77.0	72.8	62.4
Bynum (CL)	79.7	39.6		38.0	71.0	35.9	63.9	65.9	56.3
Average	**95.0**	**37.6**		**43.7**	**86.3**	**42.9**	**87.6**	**75.7**	**67.2**
LSD (0.05)	**7.0**	**4.8**		**8.0**	**9.0**	**5.1**	**15.4**	**9.0**	**5.9**
C. V. (%)	**4.2**	**7.2**		**11.2**	**5.9**	**6.9**	**10.9**	**6.6**	**8.4**
P-value (Varieties)	**<.0001**	**<.0001**		**0.0010**	**<.0001**	**<.0001**		**<.0001**	**<.0001**

** = 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. 2009 Intrastate Winter Wheat Test (Exp. 35): Mult-Location Test Weight (lb/bu)

Cultivar/Line	Bozeman LAT	Havre RCB	Sidney w interkill	Williston RCB	Kalispell 1 rep	Moccasin RCB	Huntley LAT	Conrad RCB	7 Loc Avg.
Jagalene	**63.9***	**63.0***		64.0	63.3	**65.0****	**61.8***	**64.8****	**63.7****
MT0861	**64.1***	**63.3****		63.8	63.7	63.8	**62.0***	**64.3***	**63.6***
MTW0759	**64.2***	**62.8***		63.8	63.2	**64.1***	**62.9****	**64.2***	**63.6***
AP 503 CL2	**64.1***	**63.0***		64.1	62.5	**64.2***	**62.0***	**64.8***	**63.5***
Promontory	**64.2****	**62.6***		**65.0****	63.5	**64.5***	60.2	63.8	**63.4***
Norris (CL)	63.6	**62.6***		63.4	63.3	63.2	**62.3***	63.9	**63.2***
Rocky	63.5	**62.8***		63.8	63.6	**64.1***	61.0	63.4	**63.2***
MTS0713	63.3	**62.2***		63.9	63.1	62.6	61.1	**64.6***	63.0
NI04421	63.6	**62.2***		**64.2***	62.3	**64.0***	59.9	**64.7***	63.0
MT06103	63.5	61.6		63.7	62.2	63.3	61.6	63.5	62.8
Curlew (UT9325-55)	63.2	61.7		63.8	63.0	63.0	60.9	63.5	62.7
Hyalite (CL, HWW)	62.6	**61.9***		62.8	63.2	62.3	**61.9***	62.7	62.5
MTS0705	62.9	**62.5***		63.2	62.3	62.3	60.3	63.9	62.5
Peregrine	63.3	61.7		62.8	63.6	61.4	**61.9***	62.9	62.5
Pryor	61.4	61.7		63.1	62.7	63.4	61.6	63.4	62.5
Hawken	62.5	**62.1***		62.4	62.4	63.3	60.5	63.0	62.3
MT0766	63.4	60.7		62.7	63.4	62.3	60.6	63.2	62.3
Tiber	63.3	**62.1***		63.0	61.7	62.9	60.2	63.2	62.3
MT0742	63.1	61.7		62.9	63.0	62.0	60.6	62.4	62.2
MT0771	62.9	**62.2***		62.8	62.8	61.8	60.5	62.7	62.2
MTW0785	63.2	61.5		62.6	62.7	62.4	60.2	62.8	62.2
Accipiter	62.8	**62.0***		63.1	61.5	60.6	**62.0***	62.6	62.1
Overland	61.1	61.4		63.5	62.0	63.6	59.8	63.2	62.1
Yellowstone	63.2	61.7		62.7	62.6	62.2	60.0	62.2	62.1
BZ9W02-2051	62.0	61.5		62.9	61.9	62.4	60.4	63.1	62.0
Darrell	61.7	61.2		62.7	62.5	62.8	60.4	62.9	62.0
Ledger	62.7	60.4		63.1	61.5	62.9	59.6	63.5	62.0
MTW0782	62.9	60.8		62.3	62.5	62.8	59.2	63.4	62.0
Settler CL	62.8	59.6		63.1	61.8	62.3	61.2	63.3	62.0
MT0552	62.6	61.5		64.0	60.6	61.7	60.1	63.1	61.9
MT0738	62.7	61.5		62.3	62.1	62.3	60.5	62.1	61.9
MT0754	62.7	61.7		62.3	62.3	61.3	60.0	62.8	61.9
NuSky (HWW)	61.7	**62.0***		62.7	62.9	62.5	60.3	61.2	61.9
Radiant	62.8	61.1		62.6	61.5	61.0	**61.8***	62.6	61.9
Wendy (HWW)	61.2	60.3		63.0	62.0	63.2	60.8	63.1	61.9
Alice (HWW)	60.3	61.1		63.4	61.1	63.5	60.2	63.0	61.8
Bynum (CL)	62.1	61.4		62.3	61.4	62.5	60.4	62.7	61.8
CDC Falcon	62.6	61.8		61.1	60.7	62.7	59.9	63.5	61.8
Genou	62.7	**62.0***		61.7	61.8	60.8	60.1	63.3	61.8
Neeley	63.1	61.2		62.7	61.8	61.5	60.1	62.5	61.8
MTS0531 (HWW)	61.6	61.0		62.3	61.9	62.3	60.6	62.3	61.7
MT0495	62.4	61.3		61.4	62.0	60.8	61.0	62.1	61.6
MTS0532 (HWW)	61.7	61.7		62.1	61.6	62.0	59.8	62.5	61.6
Rampart	62.4	61.3		62.4	61.6	62.0	59.5	62.3	61.6
MTS0721	61.9	61.1		61.9	62.0	61.9	59.0	62.7	61.5
Jerry	61.9	60.5		62.7	61.9	61.5	59.5	62.1	61.4
Ripper	60.6	61.1		62.4	62.0	61.5	59.4	62.4	61.3
Carter	61.0	60.4		62.8	60.7	63.0	57.3	62.5	61.1
Wahoo	61.5	61.4		62.4	59.8	62.7	58.8	61.4	61.1
Average	**62.6**	**61.6**		**62.9**	**62.2**	**62.6**	**60.5**	**62.9**	**62.2**
LSD (0.05)	**0.5**	**1.4**		**0.8**		**1.1**	**1.2**	**0.6**	**0.7**
C. V. (%)	**0.5**	**1.4**		**0.6**		**0.9**	**1.2**	**0.6**	**1.0**
P-value (Varieties)	**<.0001**	**0.0005**		**<.0001**		**0.0053**		**<.0001**	**<.0001**

** = 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. 2009 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Heading Date (Julian)

Cultivar/Line	Bozeman	Havre LAT	Sidney w interkill	Williston RCB	Kalispell RCB	Moccasin LAT	Huntley RCB	Conrad	x Loc Avg.
Hawken	164	163		156	154	167	150	165	159.7
Ripper	163	163		156	154	166	153	165	160.1
Wendy (HWW)	165	164		156	154	166	153	166	160.6
Alice (HWW)	166	165		157	154	167	154	166	161.3
Wahoo	166	165		158	154	167	154	166	161.4
NI04421	167	163		160	154	169	155	166	162.0
Overland	166	164		159	155	168	157	166	162.0
Darrell	167	167		160	154	167	155	166	162.3
Norris (CL)	167	165		162	155	169	154	167	162.6
MT06103	167	164		162	154	168	156	167	162.7
Hyalite (CL, HWW)	168	167		159	156	169	154	167	162.8
AP 503 CL2	167	167		159	156	170	156	167	163.1
Jagalene	168	167		160	155	170	156	167	163.1
Settler CL	167	165		161	156	169	156	168	163.1
Carter	168	169		162	156	169	158	167	164.0
MTS0532 (HWW)	169	166		162	156	170	158	167	164.0
Bynum (CL)	168	169		160	154	170	163	166	164.3
MT0552	168	166		162	156	169	162	168	164.3
MTS0721	169	168		163	155	171	159	167	164.6
CDC Falcon	170	168		163	156	171	158	168	164.8
MTS0713	169	170		163	156	170	159	168	164.9
Ledger	168	169		162	154	171	163	168	165.0
Promontory	170	167		161	157	171	162	168	165.0
Rampart	170	169		163	156	171	158	168	165.0
Curlew (UT9325-55)	170	169		163	157	170	157	169	165.0
MTS0531 (HWW)	169	167		163	156	171	163	167	165.1
MTW0782	170	168		162	156	170	162	168	165.1
MT0742	170	168		163	156	170	161	168	165.2
MT0861	170	167		161	157	170	164	168	165.2
Jerry	171	168		164	156	171	160	168	165.3
MT0495	170	168		163	157	171	161	168	165.3
MT0771	169	168		162	156	170	163	168	165.3
MTW0759	170	168		162	157	171	162	168	165.4
Rocky	170	167		164	156	170	163	169	165.4
MT0766	169	168		164	156	171	162	169	165.6
Genou	170	169		163	156	170	163	168	165.7
MTW0785	171	168		165	157	171	163	169	166.2
Peregrine	172	167		165	159	170	161	169	166.2
BZ9W02-2051	170	169		165	157	171	163	169	166.3
Pryor	171	170		164	157	171	163	168	166.3
MT0754	171	170		162	158	171	165	168	166.5
Yellowstone	171	168		164	158	171	163	169	166.5
MT0738	170	170		165	158	171	163	170	166.8
Radiant	171	169		164	158	172	164	170	166.8
Tiber	172	169		165	160	171	164	169	167.0
MTS0705	172	169		164	159	172	163	169	167.1
NuSky (HWW)	172	170		164	158	173	164	170	167.1
Accipiter	172	168		165	159	173	164	171	167.4
Neeley	173	170		164	160	172	163	170	167.4
Average	**169.0**	**167.3**		**161.9**	**156.2**	**170.0**	**159.7**	**167.8**	**164.6**
LSD (0.05)	**0.8**	**2.2**		**2.5**	**1.3**	**1.5**	**1.5**		**1.4**
C. V. (%)	**0.3**	**0.8**		**2.4**	**0.5**	**0.5**	**0.6**		**0.8**
P-value (Varieties)	**<.0001**	**<.0001**		**<.0001**	**<.0001**	**<.0001**			**<.0001**

** = 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. 2009 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Plant Height (inches)

Cultivar/Line	Bozeman LAT	Havre LAT	Sidney winterkill	Williston RCB	Kalispell LAT	Moccasin LAT	Huntley RCB	Conrad 1 rep	x Loc Avg.
Carter	31.5	22.4		24.3	25.3	23.4	30.3	25	26.0
Ripper	33.6	20.3		24.0	27.6	21.2	32.1	27	26.5
Wendy (HWW)	32.4	20.1		23.5	26.2	23.0	31.0	29	26.5
Hawken	31.2	20.7		25.5	26.8	22.9	31.5	29	26.8
Alice (HWW)	32.1	21.5		25.1	26.4	22.1	32.0	29	26.9
AP 503 CL2	32.0	23.6		24.9	27.4	23.7	33.1	29	27.7
MTS0721	35.0	21.5		24.1	27.5	22.3	36.3	27	27.7
Pryor	32.2	24.6		23.9	27.5	23.0	33.4	29	27.7
CDC Falcon	31.4	24.1		24.7	27.0	23.9	34.6	29	27.8
Settler CL	32.6	21.0		26.8	28.0	24.3	34.4	30	28.2
MT0771	35.8	23.0		25.5	30.4	23.4	32.1	31	28.7
Accipiter	33.5	24.8		25.6	29.9	23.2	34.7	30	28.8
Jagalene	35.0	22.5		26.3	29.1	24.4	37.2	27	28.8
MTS0531 (HWW)	34.3	24.9		26.3	27.2	25.0	34.0	30	28.8
MTS0713	33.6	24.0		27.3	27.4	24.5	34.3	31	28.9
MTW0785	35.9	23.5		24.5	28.9	23.3	35.2	31	28.9
Ledger	33.7	23.8		26.8	28.8	23.9	36.8	29	29.0
MT0754	35.7	22.9		26.5	28.3	24.6	34.0	31	29.0
MT0766	36.8	22.9		25.5	30.1	22.1	35.3	30	29.0
MT0552	34.5	25.6		26.3	29.0	25.0	33.7	30	29.2
MTS0532 (HWW)	34.4	25.4		28.2	27.8	24.3	36.4	29	29.4
MTW0782	35.0	23.7		26.0	29.8	25.1	37.9	30	29.6
MT0861	35.7	24.0		27.1	30.6	24.3	34.3	32	29.7
MT0495	35.7	25.0		26.6	29.0	26.3	36.1	30	29.8
NI04421	36.0	24.7		24.9	29.9	25.9	38.0	29	29.8
BZ9W02-2051	36.6	26.1		28.0	28.4	23.9	37.2	29	29.9
Wahoo	36.4	25.2		28.1	27.9	24.9	37.1	32	30.2
Overland	36.6	24.3		27.7	29.7	25.0	37.5	32	30.4
Hyalite (CL, HWW)	36.6	23.7		27.0	31.0	26.3	39.2	31	30.7
Radiant	35.2	26.2		28.5	29.6	23.3	37.2	35	30.7
Darrell	36.7	25.4		27.3	29.6	27.3	38.2	31	30.8
MTW0759	36.2	25.5		27.7	30.6	25.1	38.1	33	30.9
Rampart	39.8	24.9		26.9	32.6	25.6	38.0	32	31.4
Yellowstone	36.4	26.1		28.7	29.8	26.9	40.0	32	31.4
Bynum (CL)	38.4	26.7		27.7	31.6	25.9	39.2	32	31.6
MT0738	36.1	27.7		28.1	30.8	26.9	39.5	33	31.7
Norris (CL)	38.9	24.0		28.7	31.5	25.1	40.3	34	31.8
Genou	39.4	26.5		27.3	31.7	27.6	37.6	33	31.9
Promontory	36.5	25.6		28.7	28.8	28.3	41.4	34	31.9
MT06103	37.2	26.6		28.1	31.8	26.9	40.2	33	32.0
NuSky (HWW)	38.3	27.5		26.6	31.8	24.7	42.8	33	32.1
Neeley	38.0	26.8		27.2	33.9	26.3	42.1	32	32.3
Rocky	39.8	27.8		27.9	32.2	29.8	36.8	34	32.6
MTS0705	41.3	29.1		28.2	32.9	25.4	39.1	34	32.9
Curlew (UT9325-55)	38.0	28.9		28.1	31.6	27.4	42.6	35	33.1
Jerry	41.5	26.9		29.2	32.8	28.6	40.8	33	33.3
MT0742	39.0	30.8		29.2	32.1	27.5	41.6	38	34.0
Peregrine	42.2	29.9		29.5	34.8	27.1	41.1	39	34.8
Tiber	43.2	28.5		29.8	36.6	26.1	43.9	39	35.3
Average	**36.1**	**24.9**		**26.8**	**29.8**	**25.0**	**36.9**	**31.3**	**30.1**
LSD (0.05)	**1.3**	**2.3**		**2.0**	**2.6**	**2.4**	**4.4**		**1.5**
C. V. (%)	**2.1**	**5.4**		**4.7**	**5.0**	**5.6**	**7.4**		**4.6**
P-value (Varieties)	**<.0001**	**<.0001**		**<.0001**	**<.0001**	**<.0001**			**<.0001**

** = 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. 2009 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Protein (%)

Cultivar/Line	Bozeman Bulk	Havre Bulk	Sidney w interkill	Williston RCB	Kalispell Bulk	Moccasin Bulk	Huntley Bulk	Conrad Bulk	7 Loc Avg.
MT0771	14.6	15.7		**17.2****	14.2	13.6	14.5	12.5	**14.4****
Bynum (CL)	15.0	14.6		16.2	13.4	13.3	14.2	13.2	**14.3***
Wendy (HWW)	14.4	14.3		15.1	13.4	13.8	12.8	12.6	**13.9***
MT0552	13.8	14.8		15.9	13.4	13.0	13.6	11.1	**13.7***
MT0766	13.9	14.2		16.0	13.8	13.5	14.5	11.7	13.7
Tiber	13.5	13.0		15.4	14.2	12.9	14.2	11.4	13.6
MT06103	14.3	13.3		14.9	14.1	13.4	13.4	10.4	13.5
Rampart	14.5	13.5		15.7	13.6	12.9	14.4	10.5	13.5
Alice (HWW)	14.4	14.5		15.0	12.4	13.3	12.6	11.2	13.4
Hyalite (CL, HWW)	13.6	14.6		16.1	12.6	12.7	12.4	11.4	13.4
MT0738	13.6	14.6		15.8	13.5	12.3	13.9	11.3	13.4
MT0861	13.6	14.1		15.0	13.2	13.4	13.1	11.0	13.4
MTS0705	13.4	13.2		15.8	14.1	13.3	14.3	11.7	13.4
MTS0713	12.7	13.9		16.2	13.2	13.5	12.9	11.6	13.4
Darrell	13.9	14.1		15.6	12.2	12.9	12.6	12.0	13.3
Hawken	14.1	14.2		14.7	12.1	13.5	12.8	11.1	13.3
MT0754	12.8	13.6		15.0	14.3	13.6	13.1	11.8	13.3
MTS0721	13.9	13.5		15.7	13.8	12.9	13.2	11.2	13.3
Carter	12.7	13.9		16.0	12.7	12.9	14.3	11.6	13.2
MTW0759	13.5	14.0		15.5	14.3	11.6	13.8	11.5	13.2
NuSky (HWW)	12.0	13.7		15.9	13.2	12.5	13.0	11.3	13.2
Overland	14.2	13.9		14.8	12.3	13.4	12.6	11.3	13.2
AP 503 CL2	13.2	14.3		14.3	12.8	12.5	13.1	11.3	13.1
CDC Falcon	13.0	13.9		14.6	12.5	12.6	12.8	11.1	13.1
Curlew (UT9325-55)	12.9	13.7		15.6	12.0	12.4	12.3	10.6	13.1
Jagalene	13.6	14.2		15.4	12.3	12.4	12.8	11.8	13.1
MTS0532 (HWW)	13.9	13.8		15.1	12.5	12.6	12.8	11.0	13.1
MTW0785	13.1	13.5		15.2	12.5	12.8	13.5	11.8	13.1
Settler CL	13.2	13.2		14.3	12.6	12.5	12.4	11.3	13.0
MTS0531 (HWW)	13.6	13.4		15.2	12.2	12.0	12.5	11.2	12.9
MTW0782	13.1	13.4		14.8	13.3	12.0	13.7	11.1	12.9
Wahoo	13.0	13.7		14.1	12.3	12.9	12.6	10.7	12.9
Genou	13.3	12.9		15.1	13.1	12.3	13.8	11.0	12.8
Jerry	14.1	12.9		14.5	11.6	12.4	13.1	11.4	12.8
Radiant	12.6	12.7		14.4	13.4	12.5	13.6	10.5	12.8
Ripper	13.0	14.1		13.7	11.7	13.1	12.7	11.3	12.8
MT0495	13.2	12.5		15.0	12.0	12.0	11.8	11.8	12.7
Norris (CL)	13.5	13.4		14.3	12.4	12.1	12.8	10.6	12.7
Yellowstone	12.2	13.2		14.7	12.7	12.1	13.0	10.3	12.6
Accipiter	12.0	13.0		14.3	11.4	12.3	12.5	10.7	12.5
BZ9W02-2051	11.9	13.2		15.0	12.9	12.2	12.4	9.7	12.5
Ledger	12.9	12.7		14.2	11.9	11.8	12.8	10.7	12.5
MT0742	12.7	13.4		14.5	11.9	12.1	12.5	10.2	12.5
Neeley	12.5	13.0		14.1	11.5	12.2	12.7	10.6	12.5
NI04421	13.3	12.9		14.1	10.0	11.5	11.7	11.2	12.5
Rocky	13.8	12.3		14.3	12.0	11.8	13.1	10.5	12.5
Peregrine	13.0	12.0		13.4	11.5	12.6	12.1	10.5	12.2
Promontory	11.6	13.0		14.2	11.4	11.2	11.9	10.3	11.9
Pryor	12.0	12.1		14.0	11.2	11.6	12.1	9.6	11.8
Average	**13.3**	**13.6**		**15.0**	**12.7**	**12.6**	**13.0**	**11.1**	**13.1**
LSD (0.05)				**0.6**					**0.6**
C. V. (%)				**1.9**					**4.6**
P-value (Varieties)				**<.0001**					**<.0001**

** = 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. 2009 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Stem Solidness (5-25)

Cultivar/Line	Bozeman	Havre	Moccasin	Conrad	4 Loc Avg.
MTS0705	**23.6****	**25.0****	**20.5****	**23.7****	**23.2****
MTS0721	20.8	**24.6***	**19.8***	**22.5***	21.9
Rampart	19.9	**24.8***	**19.4***	**23.6***	21.9
MTS0713	20.3	**24.2***	**19.4***	**22.6***	21.6
MTS0531 (HWW)	18.8	**24.6***	**19.1***	**21.2***	20.9
Bynum (CL)	16.2	22.7	**20.1***	**21.8***	20.2
MTS0532 (HWW)	17.1	**24.4***	**19.0***	20.4	20.2
Genou	16.2	**24.4***	17.5	20.7	19.7
Carter	11.1	17.9	13.7	12.8	13.9
Ledger	7.3	15.7	8.7	7.8	9.9
CDC Falcon	5.2	11.4	6.4	6.6	7.4
Neeley	5.1	9.7	5.4	5.3	6.4
Average	**15.1**	**20.8**	**15.8**	**17.4**	**17.3**
LSD (0.05)	**1.2**	**2.3**	**1.7**	**1.9**	**0.9**
C. V. (%)	**4.8**	**6.6**	**6.4**	**6.4**	**6.3**
P-value (Varieties)	**<.0001**	**<.0001**	**<.0001**	**<.0001**	**<.0001**
% stems with tunneling	**1.7**	**47.2**	**2.2**	**24.4**	

Locations were significant (P= <.0001)

** = 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. 2009 Intrastate Winter Wheat Test (Exp. 35): Plant Disease Assessment

Cultivar/Line	Bozeman		Pullman, WA Stripe R.		Bozeman	Ft Ellis	Yue Jin	Ft Ellis
	'Early'	'Late'	Infection	%	Physiol.	Stem Rust	St Paul, MN	Stem Rust
	Stripe Rust		type[1/]		Leaf Spot %	Reaction - 2009	Postulated genes	Reaction - 2008
	10-Jul	21-Jul	Late milk, 1-Jul		30-Jun	5-Aug		
Accipiter	5.9	6.6	8	90	3.3	**R**	Sr24	**MS**
Alice (HWW)	1.2	14.6	8	80	0.2	**R**		**MS**
AP 503 CL2	0.1	1.4	5	30	0.1	**R**	Sr24	**MS**
Bynum (CL)	0.5	1.9	2	20	0.1	**R**		**MS**
BZ9W02-2051	8.0	46.6	8	100	0.2	**MS**	a very unique resistance pattern	**S**
Carter	0.8	28.5	8	90	0.0	**R**		**MS**
CDC Falcon	0.6	4.7	2	20	21.4	**R**	Sr24	**MR**
Curlew (UT9325-55)	0.1	1.1			0.0	**VS**		
Darrell	0.8	13.7	8	100	0.0	**R**	Sr24	**R**
Genou	3.6	4.8	8	70	0.2	**S**		**S**
Hawken	0.3	0.5	5	30	0.0	**R**		**MR**
Hyalite (CL, HWW)	2.8	14.2	5	40	0.0	**R**		**R**
Jagalene	0.0	6.1	3	10	0.1	**R**	Sr24	**MR**
Jerry	0.4	3.5	3	50	0.0	**R**		**R**
Ledger	0.2	11.1	5	30	0.0	**S**		**S**
MT0495	0.0	0.0	8	70	0.0	**S**	Tmp?	**S**
MT0552	0.7	2.8	8	100	0.0	**R**	Sr24	**R**
MT06103	0.0	0.2	2	20	0.1	**R**		**R**
MT0738	0.9	3.4	2	30	0.2	**R**		**MR**
MT0742	0.4	0.9	3	20	0.1	**R**		**R**
MT0754	0.3	0.7	2	1	0.1	**R**	Sr36	**MR**
MT0766	0.9	0.0	2	1	0.3	**MR**		**MR**
MT0771	0.0	0.0	2	10	0.1	**R**	Sr24	**MR**
MT0861	2.7	0.0	2	1	0.0	**VS**		**VS**
MTS0531 (HWW)	0.0	0.8	2	1	0.0	**R**		**MR**
MTS0532 (HWW)	0.0	0.0	2	1	0.0	**R**		**MR**
MTS0705	1.5	2.2	2	20	0.0	**R**		**MR**
MTS0713	0.7	1.2	2	1	0.0	**R**		**S**
MTS0721	0.6	15.7	5	40	0.1	**R**	Sr36	**R**
MTW0759	0.5	1.4	2	1	0.4	**R**		**S**
MTW0782	0.9	3.9	2	5	0.2	**R**	Sr36	**MS**
MTW0785	0.0	0.0	2	1	0.1	**R**	Sr36	**MR**
Neeley	4.4	14.0	8	70	1.0	**S**	Tmp? Too high for RFCS	**S**
NI04421	0.4	0.0			0.0	**VS**	Sr36	
Norris (CL)	0.5	5.0	5	60	0.0	**S**		**S**
NuSky (HWW)	7.0	55.9	8	90	0.0	**R**		**R**
Overland	1.0	3.3			0.1	**R**		
Peregrine	0.1	1.1	2	10	0.2	**R**		**MS**
Promontory	0.1	1.9	5	20	0.8	**S**		**VS**
Pryor	17.9	21.8	8	70	0.0	**VS**		**S**
Radiant	0.3	3.0			34.8	**VS**		
Rampart	0.0	12.3	2	5	0.1	**R**		**MR**
Ripper	46.7	82.8	8	100	0.0	**S**	Tmp	**S**
Rocky	0.0	0.0	5	60	0.0	**R**		**R**
Settler CL	0.2	6.8			0.2	**R**		
Tiber	0.8	3.5	5	30	0.2	**VS**		**VS**
Wahoo	1.7	6.1	8	100	0.0	**R**	Sr24	**R**
Wendy (HWW)	0.1	1.3	8	70	0.1	**MS**		**MR**
Yellowstone	0.0	0.8	2	1	0.3	**S**		**MS**
Average	**2.3**	**8.4**			**1.3**			
LSD (0.05)	**8.8**	**10.2**			**3.7**			
C. V. (%)	**231**	**72**			**175**			
P-value (Varieties)	**<.0001**	**<.0001**			**<.0001**			

1/ Infection type recorded on 0-9 scale. Generally: 0-3 = resistant, 4-6 = intermediate, and 7-9 = susceptible

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