PROJECT TITLE: Intra-State Winter Wheat Variety Performance

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PROJECT PERSONNEL:

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Objectives:
To evaluate new and existing winter wheat lines and varieties in dryland fallow under various Montana growing conditions.

Results:
Grain yield, test weight, heading date, plant height, agronomic score, and disease ratings are presented in tables 1, 2, 3, 4, 5, and 6. Table 6 also has winter survival rating for Sidney. The plentiful moisture of 1993 provided sufficient water to overcome drier conditions in 1994 to provide good growing conditions at most locations. There were good ranges in yield, test weights, and disease ratings to provide differentiating scores.

Summary:
Yields were generally above average with the Kalispell location averaging 100 bu/a. Yuma, Vona and Hybritech's XNH 1643 and XNH 1727 had the high overall average yields. The test weights (TW) at Huntley were low do to heat and moisture stress during seed fill. Ten varieties had TW < 57 lbs/bu. Mean heading dates ranged from d 153.7 for Vona to d 165 for Norstar. Five entries had overall mean heights < 30" and 26 entries with mean heights > 35". The "agronomic score" is an overall visual score Bruckner gives during the growing season to provide an extra tool in rating the fitness of a line or variety. Infestations of powdery mildew, septoria, stripe rust, TCK, and wheat streak mosaic occurred at the various locations. Sidney experienced moderate winter kill. Yields did not always reflect the severity of winter kill indicating compensation occurred or the plants were still in recovery when winter survival was evaluated.

Future Plans:
The research centers and winter wheat breeding program plan to continue to evaluate new winter wheat lines and varieties in uniform statewide trials.

Table 1. 1994 Montana Winter Wheat Intra-State Nurseries Statewide Yield Summary.

ID #	Name or Pedigree	Bozmn	Havre	Sidny	Kalspl	Hunt	Conrd	mean	BYX	RSQ
		- - - - - - - - - -			bu/a	- - - - - - - - - -				
BZ9W89-8	BZ9W89-8 WPB	81.9	54.1	35.4	100.7	63.1	62.2	66.2	1.08	0.89
BZ9W8914	BZ9W89-14 WPB	60.2	36.1	4.7	73.9	53.4	38.8	44.5	0.99	0.67
CI 13670	WINALTA	66.7	50.2	52.9	77.4	52.4	51.8	58.6	0.55	0.97
CI 15075	CENTURK	79.0	57.9	46.1	102.4	60.3	61.5	67.9	0.98	0.95
CI 17439	ROUGHRIDER	59.6	51.9	55.7	76.7	52.2	43.9	56.7	0.47	0.71
CI 17441	VONA	92.2	59.4	59.2	117.3	67.4	54.8	75.0	1.21	0.95
CI 17727	WESTON	78.7	50.9	36.4	97.9	56.3	45.9	61.0	1.12	0.94
CI 17735	NORSTAR	69.0	43.8	62.3	78.0	48.6	45.8	57.9	0.59	0.70
CI 17844	REDWIN	83.6	51.3	45.7	99.1	55.3	55.1	65.0	1.07	0.99
CI 17846	MANNING	92.6	52.2	27.9	122.4	64.8	68.8	71.5	1.57	0.90
CI 17860	NEELEY	102.8	53.8	50.4	120.5	54.0	61.0	73.8	1.51	0.99
CI 17879	ROCKY	85.5	60.7	57.1	112.1	64.3	56.0	72.6	1.09	0.95
CI 17902	WINRIDGE	84.4	50.5	45.7	106.5	51.0	59.7	66.3	1.21	0.99
CO820009	LAMAR	77.8	56.7	31.8	103.9	59.8	56.3	64.4	1.15	0.88
CO850061	YUMA	93.1	64.5	49.5	124.2	70.5	65.0	77.8	1.32	0.95
IDHW0355	2*MC/NP824/3/LMH66/5	88.9	59.6	54.1	100.8	54.0	64.6	70.4	0.98	0.97
JULES	JULES	99.7	57.4	46.6	113.6	50.6	69.0	72.8	1.36	0.95
MT 7811	FRD/WNK//MT 6928/TR	86.0	53.5	64.2	100.0	56.1	64.0	70.7	0.89	0.92
MT 8039	JUDITH	97.8	54.9	59.3	117.2	54.6	45.4	71.5	1.39	0.91
MT 8713	RRI/MT 6928	84.8	53.6	58.4	98.5	56.3	55.0	67.8	0.94	0.96
MT 8719	RRI/MT 6928	77.8	55.2	58.8	85.4	53.8	53.8	64.1	0.67	0.92
MT 8918	MT7673/MT7115	91.6	53.8	58.9	104.5	54.7	75.5	73.2	1.02	0.91
MT 8949	RDW/FRD//RRI/(TT/BURT7)	79.9	49.7	58.8	85.1	52.8	60.7	64.5	0.70	0.90
MT 88046	PMN5/MT77003//HP344	75.4	48.7	44.5	93.4	50.8	53.8	61.1	0.97	1.00
MT 91051	ORSFTWT/FRD//MT7811	84.1	54.0	58.0	100.1	52.1	56.2	67.4	0.98	0.96
MT 91432	MT7851/WWP44394//NWN/MT72	90.9	50.1	53.2	108.7	63.2	53.5	69.9	1.20	0.97
MTS92042	LEW/TBR//RDW	83.2	49.3	66.8	109.6	52.4	54.7	69.3	1.10	0.87
MTS92055	LEW/TBR//RDW	82.2	49.2	44.6	102.5	49.0	49.0	62.7	1.20	0.99
MTS92057	LEW/TBR//RDW	74.5	47.3	33.5	92.7	46.9	45.7	56.8	1.10	0.97
MTSF2238	LEW/TBR//RDW	76.3	48.4	31.7	97.1	55.8	50.8	60.0	1.13	0.93
PI478771	AGASSIZ	67.2	48.9	55.8	66.2	49.5	50.2	56.3	0.37	0.76
PI491533	NORWIN	83.9	47.9	54.1	97.1	50.5	72.4	67.7	0.95	0.87
PI512302	BLIZZARD	85.1	58.0	61.4	101.2	59.9	65.4	71.8	0.87	0.98
PI517194	TIBER	81.2	52.2	60.8	107.2	58.9	60.0	70.0	1.01	0.94
PI518591	ARAPAHO	75.7	51.3	59.6	75.7	60.8	58.5	63.6	0.46	0.84
PI557013	MERIDIAN	92.1	49.7	60.8	99.5	53.0	69.5	70.8	0.99	0.90
PI560129	PROMONTORY	99.4	53.5	54.2	110.5	62.3	64.6	74.1	1.23	0.98
PI564245	KARL 92	62.1	43.5	37.2	77.6	56.6	49.8	54.5	0.68	0.87
QT 542	HYBRITECH 542	98.1	60.2	48.0	105.3	64.6	74.0	75.1	1.08	0.92
RDW(SEL)	AC READYMADE	77.6	50.3	53.2	91.9	54.9	58.9	64.5	0.83	0.99
S86-15	KESTREL	83.6	51.1	62.8	103.2	53.4	59.3	68.9	0.99	0.93
S86-736	S86-736	85.3	54.0	64.0	114.8	57.5	65.6	73.5	1.12	0.93
VISTA	VISTA	75.2	55.6	53.0	63.9	63.8	62.7	62.4	0.25	0.41
WI88-275	WI88-275 WPB	89.3	61.6	34.7	104.1	62.8	57.2	68.3	1.17	0.88
XNH 1609	XNH 1609	94.4	64.5	58.1	115.7	67.5	74.2	79.1	1.09	0.98
XNH 1643	XNH 1643	99.4	60.2	67.3	116.4	62.0	75.4	80.1	1.13	0.96
XNH 1654	XNH 1654	98.1	57.2	54.2	109.6	59.3	69.3	74.6	1.17	0.98
XNH 1712	XNH 1712	89.2	60.8	51.5	112.5	64.9	67.9	74.4	1.12	0.98
XNH 1727	XNH 1727	94.8	60.0	61.7	105.5	67.4	72.6	77.0	0.94	0.98
MEAN		83.9	53.5	51.1	100.0	57.3	59.3	67.5	1.00	1.00

Moccasin location was not harvested due to stand loss to seedling burial.

Table 2. 1994 Montana Winter Wheat Intra-State Nur. Statewide Test Weight Summary.

ID #	Name or Pedigree	Bozmn	Havre	Sidny	Kalsp	Hunt	Conrd	mean	BYX	RSQ
		lbs/bu								
BZ9W89-8	WPB BZ9W89-8	62.8	60.6	58.7	61.5	57.8	60.2	60.3	0.95	0.79
BZ9W8914	WPB BZ9W89-14	62.2	61.2	39.9	59.7	58.8	60.0	57.0	0.99	0.04
CI 13670	WINALTA	63.3	62.2	62.9	60.6	60.5	61.6	61.8	0.50	0.53
CI 15075	CENTURK	63.4	61.8	60.2	60.8	57.7	61.7	60.9	1.05	0.86
CI 17439	ROUGHRIDER	62.7	61.4	62.8	59.7	59.9	60.2	61.1	0.51	0.39
CI 17441	VONA	64.0	62.6	61.6	62.4	60.1	61.6	62.1	0.75	0.98
CI 17727	WESTON	64.2	62.0	58.5	62.2	58.9	59.6	60.9	1.10	0.70
CI 17735	NORSTAR	62.5	60.9	63.3	59.3	59.6	59.4	60.8	0.52	0.26
CI 17844	REDWIN	63.5	62.4	58.4	61.4	59.2	60.2	60.9	0.95	0.66
CI 17846	MANNING	63.6	61.8	55.0	60.8	57.0	59.2	59.6	1.41	0.57
CI 17860	NEELEY	63.7	60.8	57.8	61.5	56.4	58.9	59.9	1.45	0.86
CI 17879	ROCKY	63.8	62.5	61.9	61.6	59.1	62.3	61.9	0.86	0.87
CI 17902	WINRIDGE	63.0	60.6	58.5	59.3	55.8	56.8	59.0	1.48	0.93
CO820009	LAMAR	64.3	62.7	57.5	62.1	59.3	61.9	61.3	1.01	0.48
CO850061	YUMA	63.5	62.3	60.8	62.1	59.7	61.7	61.7	0.74	0.90
IDHW0355	2*MC/NP824/3/LMH66/5	62.9	61.0	59.7	60.8	57.0	59.3	60.1	1.16	0.98
JULES	JULES	62.8	60.5	59.0	60.5	52.7	59.6	59.2	1.89	0.88
MT 7811	FRD/WNK//MT6928/TR	62.2	60.8	62.1	59.3	57.1	59.5	60.2	0.94	0.67
MT 8039	JUDITH	61.9	59.8	58.5	59.6	55.2	56.6	58.6	1.36	0.92
MT 8713	RRI/MT 6928	63.4	61.6	63.7	61.9	58.7	59.8	61.5	0.88	0.58
MT 8719	RRI/MT 6928	63.5	62.1	64.0	61.0	59.0	60.6	61.7	0.82	0.56
MT 8918	MT7673/MT7115	63.5	62.0	59.6	61.4	57.2	58.4	60.4	1.34	0.91
MT 8949	RDW/FRD//RRI/(TT/BURT7)	64.0	61.5	62.7	60.5	58.3	60.6	61.3	1.02	0.79
MT 88046	PMN5/MT77003//HP344	62.4	61.4	61.0	61.8	58.3	60.7	60.9	0.79	0.87
MT 91051	ORSFTWT/FRD//MT7811	61.4	59.6	58.9	59.3	56.1	56.1	58.6	1.12	0.81
MT 91432	MT7851/WWP44384//NWN/MT72	63.6	61.9	60.5	60.4	58.9	59.1	60.8	0.97	0.86
MTS92042	LEW/TBR//RDW	62.8	60.5	62.9	61.1	57.3	61.1	61.0	0.93	0.61
MTS92055	LEW/TBR//RDW	63.4	60.7	62.5	62.0	57.7	59.5	61.0	1.06	0.72
MTS92057	LEW/TBR//RDW	63.5	60.9	60.6	61.8	57.2	59.5	60.6	1.21	0.92
MTSF2238	LEW/TBR//RDW	63.0	60.6	59.7	61.3	58.4	61.9	60.8	0.79	0.67
PI478771	AGASSIZ	62.9	61.2	64.1	60.4	57.9	58.3	60.8	0.97	0.45
PI491533	NORWIN	63.1	62.0	62.4	60.7	56.6	61.0	61.0	1.21	0.78
PI512302	BLIZZARD	63.8	62.0	59.1	60.5	60.0	58.9	60.7	0.84	0.58
PI517194	TIBER	63.3	62.0	62.5	60.8	59.4	60.6	61.4	0.74	0.77
PI518591	ARAPAHO	61.8	61.0	61.0	59.2	56.9	59.4	59.9	0.95	0.80
PI557013	MERIDIAN	63.1	61.1	55.0	59.2	56.8	57.4	58.8	1.38	0.61
PI560129	PROMONTORY	64.5	63.0	62.7	62.2	58.8	61.0	62.0	1.12	0.94
PI564245	KARL 92	61.7	60.5	60.7	59.9	59.4	60.6	60.5	0.39	0.72
QT 542	HYBRITECH 542	63.6	61.4	60.8	61.2	58.6	61.5	61.2	0.91	0.91
RDW(SEL)	AC READYMADE	62.9	62.2	59.6	60.6	60.0	58.9	60.7	0.67	0.55
S86-15	KESTREL	61.4	60.0	60.1	59.9	55.4	57.6	59.1	1.19	0.86
S86-736	S86-736	62.0	60.0	61.5	59.2	57.5	58.7	59.8	0.83	0.68
VISTA	VISTA	62.0	61.5	61.7	59.4	56.6	60.8	60.4	1.00	0.67
WI88-275	WPB WI88-275	62.3	60.2	59.7	60.2	56.5	59.8	59.8	1.08	0.95
XNH 1609	XNH 1609	63.0	61.8	62.9	61.1	57.2	61.6	61.3	1.04	0.68
XNH 1643	XNH 1643	63.2	61.6	63.4	61.1	57.3	60.3	61.2	1.10	0.69
XNH 1654	XNH 1654	64.1	62.6	63.0	61.6	58.4	61.7	61.9	1.05	0.84
XNH 1712	XNH 1712	63.3	61.6	61.3	61.2	58.0	61.8	61.2	0.95	0.85
XNH 1727	XNH 1727	62.4	61.0	61.5	59.9	57.0	60.1	60.3	1.01	0.83
MEAN		63.0	61.4	60.3	60.7	57.9	59.9	60.6	1.00	1.00

Moccasin location was not harvested due to stand loss to seedling burial.

Table 3. 1994 Montana Winter Wheat Intra-State Variety Statewide Headdate Summary.

ID #	Name or Pedigree	Bozmn	Havre	Sidny	Kalsp	Hunt	Conrd	mean	BYX	RSQ
		lbs/bu								
BZ9W89-8	WPBBZ9W89-8	157	153	161	152	146	163	155.5	1.00	0.90
BZ9W8914	WPBBZ9W89-14	159	151	165	151	143	160	154.9	1.08	0.71
CI 13670	WINALTA	164	158	162	158	154	171	161.3	0.95	0.97
CI 15075	CENTURK	161	154	161	155	148	161	156.7	0.78	0.83
CI 17439	ROUGHRIDER	164	159	162	159	154	172	161.6	0.99	0.96
CI 17441	VONA	157	152	157	152	147	157	153.7	0.61	0.81
CI 17727	WESTON	161	158	161	156	149	172	159.6	1.23	0.98
CI 17735	NORSTAR	170	162	163	161	158	176	165.1	1.01	0.87
CI 17844	REDWIN	164	159	165	158	154	172	161.8	1.03	0.98
CI 17846	MANNING	162	157	161	157	150	169	159.4	1.03	0.99
CI 17860	NEELEY	164	159	165	158	152	171	161.5	1.07	1.00
CI 17879	ROCKY	160	155	160	156	150	166	157.9	0.90	1.00
CI 17902	WINRIDGE	164	161	166	161	153	173	163.1	1.07	0.98
CO820009	LAMAR	158	153	161	153	147	165	156.4	1.04	0.95
CO850061	YUMA	157	152	158	153	146	160	154.4	0.80	0.92
IDHW0355	2*MC/NP824/3/LMH66/5	163	158	163	158	154	172	161.5	1.01	0.98
JULES	JULES	161	157	164	158	150	169	159.9	1.05	0.97
MT 7811	FRD/WNK//MT 6928/TR	163	159	162	159	151	170	160.6	1.01	0.98
MT 8039	JUDITH	160	156	162	156	150	171	159.2	1.15	0.98
MT 8713	RRI/MT 6928	160	156	161	156	150	171	159.1	1.13	0.97
MT 8719	RRI/MT 6928	162	155	162	159	152	171	160.2	1.05	0.96
MT 8918	MT7673/MT7115	163	159	163	159	153	171	161.3	0.97	0.99
MT 8949	RDW/FRD//RRI/(TT/BURT7)	164	159	161	160	152	172	161.4	1.05	0.96
MT 88046	PMN5/MT77003//HP344	158	153	158	153	148	165	155.9	0.95	1.00
MT 91051	ORSFTWT/FRD//MT7811	164	160	163	159	151	171	161.4	1.07	0.98
MT 91432	MT7851/WWP44384//NWN/MT72	163	158	162	159	151	170	160.4	1.02	0.99
MTS92042	LEW/TBR//RDW	161	158	162	157	152	171	160.0	1.05	0.97
MTS92055	LEW/TBR//RDW	162	158	162	157	152	170	160.1	0.99	0.98
MTS92057	LEW/TBR//RDW	162	156	163	156	152	170	159.9	1.04	0.97
MTSF2238	LEW/TBR//RDW	161	156	162	157	150	166	158.9	0.90	0.96
PI478771	AGASSIZ	164	159	163	158	153	172	161.8	1.06	0.99
PI491533	NORWIN	167	160	162	160	148	172	161.7	1.27	0.91
PI512302	BLIZZARD	165	158	165	160	153	176	163.0	1.27	0.98
PI517194	TIBER	163	158	163	159	152	171	161.1	1.03	0.99
PI518591	ARAPAHO	158	152	158	153	150	166	156.3	0.91	0.95
PI557013	MERIDIAN	166	160	165	161	154	172	163.1	0.99	1.00
PI560129	PROMONTORY	161	157	158	156	150	164	157.7	0.75	0.94
PI564245	KARL 92	158	151	156	154	145	160	154.1	0.85	0.90
QT 542	HYBRITECH 542	159	156	163	155	148	169	158.3	1.16	0.97
RDW(SEL)	AC READYMADE	164	159	165	159	153	176	162.7	1.26	0.97
S86-15	KESTREL	164	158	161	159	153	172	161.3	1.04	0.97
S86-736	S86-736	164	157	160	158	151	172	160.5	1.13	0.96
VISTA	VISTA	156	151	156	153	147	163	154.4	0.88	0.99
WI88-275	WPB WI88-275	157	152	157	153	147	158	154.2	0.64	0.86
XNH 1609	XNH 1609	158	153	159	154	150	165	156.5	0.85	0.97
XNH 1643	XNH 1643	161	156	161	156	150	170	159.3	1.10	0.99
XNH 1654	XNH 1654	160	156	159	155	150	164	157.3	0.78	0.98
XNH 1712	XNH 1712	158	154	159	155	149	164	156.4	0.83	0.99
XNH 1727	XNH 1727	159	155	161	155	150	171	158.4	1.15	0.96
MEAN		161	156	161	157	150	168	159.2	1.00	1.00

Moccasin location was not harvested due to stand loss to seedling burial.

Table 4. 1994 Montana Winter Wheat Intra-State Variety Statewide Height Summary.

ID #	Name or Pedigree	Bozmn	Havre	Sidny	Kalsp	Hunt	Conrd	mean	BYX	RSQ
		- - - - - - - - - - inches - - - - - - - - - -								
BZ9W89-8	WPBBZ9W89-8	29	24	24	30	27	29	27.1	0.44	0.60
BZ9W8914	WPBBZ9W89-14	28	23	24	32	27	27	27.0	0.57	0.84
CI 13670	WINALTA	48	34	36	50	37	40	40.8	1.35	0.94
CI 15075	CENTURK	40	31	33	46	34	32	36.1	1.26	0.98
CI 17439	ROUGHRIDER	48	37	37	51	39	35	41.3	1.33	0.92
CI 17441	VONA	34	26	27	38	32	28	30.9	0.88	0.86
CI 17727	WESTON	44	33	34	49	36	33	38.3	1.42	0.97
CI 17735	NORSTAR	48	40	42	54	35	39	43.2	1.33	0.81
CI 17844	REDWIN	43	32	36	49	37	33	38.6	1.33	0.95
CI 17846	MANNING	39	30	31	42	30	31	33.9	1.10	0.96
CI 17860	NEELEY	41	30	34	43	35	35	36.4	0.99	0.93
CI 17879	ROCKY	41	32	31	47	34	32	36.2	1.35	0.98
CI 17902	WINRIDGE	41	33	35	48	36	38	38.5	1.09	0.94
CO820009	LAMAR	40	34	30	47	33	31	35.9	1.31	0.90
CO850061	YUMA	33	28	29	37	31	30	31.2	0.69	0.97
IDHW0355	2*MC/NP824/3/LMH66/5	44	31	36	48	35	36	38.4	1.32	0.96
JULES	JULES	35	27	29	40	30	33	32.3	0.93	0.90
MT 7811	FRD/WNK//MT 6928/TR	38	34	36	42	34	33	36.2	0.63	0.85
MT 8039	JUDITH	40	31	32	43	33	32	35.4	1.06	0.98
MT 8713	RRI/MT 6928	32	28	28	36	30	28	30.4	0.66	0.95
MT 8719	RRI/MT 6928	38	32	32	42	32	32	34.7	0.89	0.97
MT 8918	MT7673/MT7115	37	30	32	43	32	33	34.8	0.99	0.97
MT 8949	RDW/FRD//RRI/(TT/BURT7	39	31	33	43	30	35	35.3	0.97	0.89
MT 88046	PMN5/MT77003//HP344	38	29	28	41	36	33	34.3	0.99	0.82
MT 91051	ORSFTWT/FRD//MT7811	43	32	38	47	36	39	39.4	1.03	0.91
MT 91432	MT7951/WWP44384//NWN/MT72	38	30	33	43	34	30	34.8	1.07	0.92
MTS92042	LEW/TBR//RDW	39	32	32	45	32	32	35.4	1.17	0.97
MTS92055	LEW/TBR//RDW	39	32	34	44	35	34	36.4	0.93	0.99
MTS92057	LEW/TBR//RDW	41	35	33	46	35	35	37.8	1.04	0.96
MTSF2238	LEW/TBR//RDW	40	30	32	44	31	34	35.3	1.16	0.97
PI478771	AGASSIZ	48	41	40	52	39	39	43.3	1.14	0.92
PI491533	NORWIN	30	25	26	31	27	27	27.7	0.50	0.94
PI512302	BLIZZARD	42	34	36	48	38	37	39.1	1.08	0.96
PI517194	TIBER	44	34	36	50	37	36	39.6	1.27	0.99
PI518591	ARAPAHO	37	30	31	42	32	34	34.5	0.95	0.97
PI557013	MERIDIAN	33	27	30	36	31	32	31.6	0.59	0.85
PI560129	PROMONTORY	37	29	29	39	31	31	32.7	0.89	0.98
PI564245	KARL 92	30	25	24	32	27	29	27.9	0.59	0.79
QT 542	HYBRITECH 542	42	32	32	47	33	35	37.1	1.26	0.98
RDW(SEL)	AC READYMADE	43	33	34	50	36	37	38.9	1.36	0.99
S86-15	KESTREL	42	33	36	43	31	33	36.5	0.95	0.77
S86-736	S86-736	43	34	36	45	36	36	38.5	0.92	0.99
VISTA	VISTA	31	23	23	36	31	29	29.1	0.91	0.78
WI88-275	WPB WI88-275	34	27	26	37	33	30	31.5	0.80	0.78
XNH 1609	XNH 1609	36	30	29	41	33	33	33.9	0.93	0.92
XNH 1643	XNH 1643	37	29	33	40	30	33	33.8	0.81	0.90
XNH 1654	XNH 1654	34	26	29	38	30	31	31.5	0.85	0.95
XNH 1712	XNH 1712	36	28	30	41	30	31	32.6	0.99	0.99
XNH 1727	XNH 1727	40	31	33	42	35	32	35.5	0.93	0.94
MEAN		39	31	32	43	33	33	35.1	1.00	1.00

Moccasin location was not harvested due to stand loss to seedling burial.

Table 5. 1994 Montana Winter Wheat Intra-State Variety Statewide Ag. Score Summary.

ID #	Name or Pedigree	Bozmn	Havre	Sidny	Hunt	Conrd	mean	BYX	RSQ
		- - - - - -			1-9	- - - - - -			
BZ9W89-8	WPB BZ9W89-8	4.37	4.99	1.28	4.33	5.34	4.1	2.42	0.52
BZ9W8914	WPB BZ9W89-14	1.98	2.99	1.01	4.00	3.00	2.6	1.08	0.21
CI 13670	WINALTA	3.95	4.01	5.05	4.33	3.67	4.2	-0.73	0.44
CI 15075	CENTURK	5.33	5.67	3.24	5.33	4.01	4.7	2.05	0.90
CI 17439	ROUGHRIDER	4.00	4.67	5.72	4.00	3.67	4.4	-0.93	0.30
CI 17441	VONA	6.31	5.68	3.64	5.67	5.67	5.4	1.86	0.78
CI 17727	WESTON	5.67	4.96	3.04	5.33	4.00	4.6	2.05	0.85
CI 17735	NORSTAR	4.99	5.00	7.03	3.67	4.00	4.9	-1.40	0.26
CI 17844	REDWIN	5.02	5.36	4.44	5.33	4.67	5.0	0.69	0.67
CI 17846	MANNING	5.01	5.35	2.71	5.67	5.01	4.8	1.95	0.64
CI 17860	NEELEY	6.99	5.97	4.66	5.67	5.01	5.7	1.69	0.81
CI 17879	ROCKY	6.67	5.98	4.98	6.67	4.01	5.7	1.58	0.44
CI 17902	WINRIDGE	3.99	4.38	2.67	4.33	4.01	3.9	1.20	0.69
CO820009	LAMAR	5.69	5.67	1.99	6.00	4.34	4.7	3.14	0.83
CO850061	YUMA	5.67	6.29	3.24	6.00	6.01	5.4	2.08	0.64
IDHW0355	2*MC/NP824/3/LMH66/5	6.02	6.02	4.66	4.33	4.34	5.1	1.33	0.54
JULESJUL	ES	5.99	4.68	2.37	4.00	5.68	4.5	2.13	0.50
MT 7811	FRD/WNK//MT 6928/TR	6.00	5.98	6.36	5.00	4.68	5.6	-0.04	0.00
MT 8039	JUDITH	6.33	6.03	4.96	5.33	4.00	5.3	1.39	0.53
MT 8713	RRI/MT 6928	6.02	5.31	4.66	4.33	3.68	4.8	1.15	0.38
MT 8719	RRI/MT 6928	6.35	7.34	5.46	5.33	5.68	6.0	1.23	0.51
MT 8918	MT7673/MT7115	4.99	4.98	4.95	3.67	4.34	4.6	0.10	0.01
MT 8949	RDW/FRD//RRI/(TT/BURT7)	5.02	5.71	5.69	3.33	5.34	5.0	-0.36	0.03
MT 88046	PMN5/MT77003//HP344	4.00	3.70	3.02	5.00	4.34	4.0	0.59	0.15
MT 91051	ORSFTWT/FRD//MT7811	6.35	5.99	5.33	4.67	5.34	5.5	0.75	0.31
MT 91432	MT7861/WWP44394//NWN/MT72	5.01	5.02	5.02	5.67	3.68	4.9	0.34	0.05
MTS92042	LEW/TBR//RDW	5.67	5.67	5.24	5.33	5.34	5.4	0.38	0.76
MTS92055	LEW/TBR//RDW	5.67	6.07	4.07	5.00	5.01	5.2	1.52	0.92
MTS92057	LEW/TBR//RDW	5.67	5.72	3.36	5.00	5.00	5.0	1.90	0.92
MTSF2238	LEW/TBR//RDW	5.32	5.97	3.06	5.67	5.01	5.0	2.11	0.79
PI478771	AGASSIZ	3.98	4.68	5.41	4.00	3.01	4.2	-0.55	0.09
PI491533	NORWIN	4.01	2.69	3.92	3.00	5.01	3.7	-0.82	0.18
PI512302	BLIZZARD	5.35	6.01	4.32	4.33	5.01	5.0	1.11	0.56
PI517194	TIBER	5.00	5.36	4.91	6.00	5.34	5.3	0.21	0.06
PI518591	ARAPAHO	4.65	4.73	4.73	5.33	4.68	4.8	0.01	0.00
PI557013	MERIDIAN	5.68	4.33	3.04	4.00	4.01	4.2	1.69	0.73
PI560129	PROMONTORY	5.95	5.30	4.56	5.33	4.68	5.2	1.02	0.76
PI564245	KARL 92	4.35	5.36	2.93	5.33	4.34	4.5	1.60	0.60
QT 542	HYBRITECH 542	6.33	6.32	3.66	6.33	5.01	5.5	2.33	0.89
RDW(SEL)	AC READYMADE	4.99	5.03	4.77	6.00	4.67	5.1	0.32	0.08
S86-15	KESTREL	6.33	5.33	6.38	4.67	5.34	5.6	-0.36	0.06
S86-736	S86-736	6.31	5.73	6.35	5.33	6.01	5.9	-0.28	0.10
VISTA	VISTA	4.67	4.64	3.55	4.33	4.68	4.4	0.82	0.67
WI88-275	WPB WI88-275	6.33	7.00	2.68	6.00	5.01	5.4	3.37	0.93
XNH 1609	XNH 1609	5.98	6.37	5.00	6.00	6.34	5.9	0.84	0.53
XNH 1643	XNH 1643	7.67	6.38	6.02	5.67	6.68	6.5	0.79	0.25
XNH 1654	XNH 1654	6.33	5.72	4.71	4.33	5.34	5.3	1.07	0.42
XNH 1712	XNH 1712	5.35	6.67	3.86	6.00	5.34	5.4	1.78	0.68
XNH 1727	XNH 1727	6.02	5.38	4.98	6.00	4.68	5.4	0.81	0.42
Mean		5.41	5.39	4.26	5.02	4.76	5.0	1.00	1.00

Ag Score- (Agronomic score) is breeders collective visual and performance score.
Moccasin location was not harvested due to stand loss to seedling burial.

Table 6. 1994 Disease Evaluations for the Montana Winter Wheat Nurseries.

	Havre		Sidney			Creston			Denton	Conrad		Bozeman
Cultivar	Powdery Mildew	Leaf Scorch	Septoria	Winter Sur.	Rnk	Stripe Rust	TCK	Septoria	Wheat Streak	Septoria	White Heads	Stripe Rust
ACREADYMADE	M	M	M-H	61	14	H	+	PLS	M-H	L	0	M
AGASSIZ	L	L-M	L-M	82	4	L-M	+	0	M	L	L	0-L
ARAPAHO	L	M	M	65	8	M	+	L	M-H	M	0	L
ARCHER									M-H			
BIGHORN									M-H			
BLIZZARD	M	M	M	52	24	L-M	-	L-M		0	0	0-L
BZ9W89-8	M	M	M	-1	49	0	-	PLS		L	0	L
BZ9W8914	L?	VH	H	11	47	?	+	PLS		L	0	L
CENTURK	L-M	M	M	33	38	L-M	+	L	M-H	L	L	0
HAWK									M-H			
IDWH0355	L	L	M	33	37	0	-	0		L	0	0
JUDITH	M	L-M	M	28	43	0	+	0	M-H	L	H	L
JULES	L-M	M	M	26	44	H	++	H		L	L	M-H
KARL92	L-M	L	L-M	40	34	0	++	L		0	0-L	0
KESTREL	L-M	M	M-H	86	3	0	+	H	H	M-H	L	0
LAMAR	L	L-M	M	16	46	M	+	M		L	M	0
LEW/TBR/RD									M-H			
MANNING	M	M	L-M	25	45	0	-	M	VH	L	L	0
MERIDIAN	M	L-M	L	28	42	0	+	L		L	0	0
MT7811	M	L	M	58	17	0	-	L	M-H	L	M	0
MT8713	M	L-M	L-M	60	15	0	+	0	H	L	0	0
MT8719	M	M	L	64	9	0	+	M	VH	L	L	L
MT88046	L	M	M	62	13	M	+	PLS		L	0	L-M
MT8918	M	L-M	L	53	23	0	+	L		0	0	0-L
MT8949	M	L-M	L-M	78	6	H	+	0		L	0	??
MT91051	L-M	L	L	53	21	VH	+	0		L	L	L
MT91432	M-H	M	M	54	20	0	+	L		L	0	HS
MTS92042	L	L	M	45	27	H	-	M		L	L	L
MTS92055	L	L-M	M	44	28	0	-	M		L	L-M	0-L
MTS92057	L-M	L-M	L-M	37	35	L-M	-	0		L	M	L-M
MTSF2238	M	L-M	M	32	40	L-M	-	L	M	L	L	L-M
NEELEY	M	L-M	M	44	29	0	+	L	M	L	0	0
NORSTAR	M	L	L	95	1	L-M	+	0	M	L	0	0-L
NORWIN	L	L-M	H	75	7	0	+	L-M		M	0	0

Table 6. (cont)

Cultivar	Havre Powdery Mildew	Havre Leaf Scorch	Sidney Septoria	Sidney Winter Sur.	Sidney Winter Rnk	Creston Stripe Rust	Creston TCK	Creston Septoria	Denton Wheat Streak	Conrad Septoria	Conrad White Heads	Bozeman Stripe Rust
NORSTAR	M	L	L	95	1	L-M	+	0	M	L	0	0-L
NORWIN	L	L-M	H	75	7	0	+	L-M		M	0	0
PROMONTORY	M	M	H	59	16	0	-	M		L	0	0
QT542	L	L-M	M	7	48	0	+	PLS	M	L	0	0
REDWIN	M	M	M	44	30	M	+	M	M-H	0	0	M
ROCKY	L	M	M	57	19	L-M	+	M	M-H	M	M	0
ROUGHRIDER	M	M	M	78	5	M	+	H		L	L	0
S86-736	L-M	L-M	M	64	11	H	+	H	H	L	0	0
TIBER	M-H	L-M	L-M	57	18	L-M	+	M	M	L	0	L
VISTA	L	L	L-M	64	10	0	+	0		L	0	L?
VONA	L	M	H	41	33	0	+	0		L	0	L-M
WESTON	L	L	M	30	41	0	-	0	M-H	L	0	0-L
WI88-275	0	L	M-H	32	39	0	+	0-L		0	0	0
WINALTA	M	M-H	M-H	87	2	L-M	+	H		L	0-L	0-L
WINRIDGE	M	M	L-M	35	36	0	-	M-H	M-H	L	L	0
XNH1609	M	L-M	M-H	62	12	M	+	0		0	L	M
XNH1653	M	L-M	M	53	22	H	+	0		0	0-L	L-M
XNH1654	M-H	L	M	47	25	VH	+	?		0	0	L-M
XNH1712	M	L-M	M	41	32	VH	++	?		L	L	L
XNH1727	M	L-M	L-M	46	26	H	+	0		L	0	L-M
YUMA	L	L-M	M-H	41	31	M	+	L		L	L	0

1 - White heads at Conrad were insect caused.

Disease Coding System:

A)L-M-H Disease reactions were mostly rated on a Low-Medium-High rating system based on whether the disease symptoms were low middle or high in the plant canopy. Ratings should be used only to compare cultivars at each location and not between locations.
Best 0 <--> Low <--> low-Mod.<--> Moderate <--> Mod.-High <--> High <--> V. High Worst
PLS = Physiological Leaf Spot - Not caused by a pathogen

C)0 = No disease present, - = No disease present or Resistant Plants
+ = some smutted heads ++ = many smutted heads

D)Conrad - White Heads - Induced by an insect which bored into the stem tissue. Insect not observed or Identified. 0 =No White Heads, L =1-5%, M =10-20%, H =25-50%