

<u>PROJECT TITLE:</u>	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 2001 Intrastate Winter Wheat Evaluation nursery was grown at Bozeman, Havre, Huntley, Kalispell, Moccasin, and Sidney, Montana and Williston, North Dakota.

The 2001 Montana winter wheat crop was smaller than average due to fewer acres planted due to droughty conditions and low prices. Eastern Montana had above average precipitation through winter wheat growing season. Central and northwestern Montana had generally dry windy spring and summer conditions. The Moccasin area did receive four inches of precipitation in June.

The 2001 yield responses show why multi-environment trials are conducted. Example NuHorizon ranked near the bottom for the Bozeman and Kalispell location and near the top at Havre and Moccasin (Table 1). MTR9997 had the over all high mean yield. Blizzard ranked second across the high yield Bozeman and Kalispell environments and MT9426 had the second highest mean yield across the four drier locations Havre, Moccasin, Huntley, and Conrad. Nuplains had the high average test weight at 62.3 (Table 2). The overall mean test weight, 60.3 lbs/bu, was right at the standard. The test weights dropped as low as 53.3 lbs/bu at Moccasin. Five MAES varieties and development line MT9929 had the top six average proteins contents with Erhardt having the high six location average at 15.7 % (Table 3). Norstar was the tallest entry at all location (Table 4). NuHorizon was the shortest at five of the six locations. The spread on the mean heading date was five days with Halt and McGuire being the earliest to head while Blizzard, Norstar and Morgan were the last to head (Table 5). The Bozeman location had the widest spread, 13 days, in heading dates. Winter survival information is not presented as the Williston and Sidney locations had complete winterkill and there was not sufficient winter kill at the other locations to evaluate.

SUMMARY:

Development line MTR9997 had good over all performance ranking well for yield, test weight, and protein content. Yield levels were down for all locations except for Moccasin which had low test weights.

FUTURE PLANS:

MAES will continue to evaluate line and varieties in uniform statewide trials.

Table 1. 2001 Intrastate Winter Wheat Evaluations (Exp. 35): 6 Location Yield (bu/a)

Cultivar/Line	Bozeman LAT	Havre LAT	Sidney	Williston	Kalispell RCB	Moccasin LAT	Huntley LAT	Conrad RCB	6 Loc Average	4 Loc Average
										no BZ, KS
+ MTR9997	119.0**	22.2			85.6*	51.1*	24.7**	14.0*	52.7**	27.5*
Blizzard	115.2*	23.5			88.0*	45.4	20.3*	12.2	51.2*	26.0*
+ MT9982	106.9	24.7*			80.9*	50.2*	17.6	14.9*	49.3	26.8*
+ MT9951	110.3	23.9*			89.4**	49.9*	7.0	12.7	48.6	22.9
+ MT9989	105.8	23.4			79.2*	47.5	14.9	12.4	48.1	25.4*
# BZ9W96-919	111.8*	23.6			83.5*	44.8	13.4	10.8	48.0	23.3
# BZ9W96-895	102.9	26.9**			75.2	49.9*	19.3	13.1	47.7	27.1*
Tiber	107.3	22.5			84.9*	44.7	17.4	13.4	47.7	24.1
MT9426	109.6	21.8			66.8	51.9*	19.7*	16.1*	47.5	27.5**
Gary (HWW)	103.3	20.4			71.7	50.1*	18.0	16.7*	47.0	26.5*
# Golden Spike (HWW)	106.7	17.8			76.9	48.4*	18.2	11.5	46.8	24.1
NuSky (HWW)	97.4	25.3*			75.0	54.4**	12.7	14.6*	46.7	27.0*
+ MT9909	111.0	22.9			68.9	49.0*	16.4	10.9	46.6	25.1*
+ MT9904	104.9	21.9			82.0*	50.2*	7.6	11.5	46.2	22.9
+ MT9949	99.4	24.4*			74.3	50.8*	14.8	11.5	45.9	25.0*
DW Red	100.9	22.1			77.8	50.9*	10.5	10.4	45.7	23.6
Judith	100.2	23.7*			76.6	46.9	14.9	10.8	45.7	24.1
# BZ9W97-761 (HWW)	99.3	19.3			74.5	42.8	20.0*	18.0**	45.5	24.8
Promontory	102.5	22.9			71.8	48.9*	16.6	11.0	45.5	24.6
Manning	103.7	21.0			71.4	47.7*	16.6	11.5	45.4	24.3
+ N95L1229	97.6	22.2			73.6	48.1*	17.2	14.7*	45.4	25.4*
Utah 100	102.3	22.2			80.5*	46.3	13.9	10.5	45.3	22.6
MT9513	101.1	23.5			76.5	46.3	15.2	9.8	45.1	23.4
Quantum 542	106.1	23.1			67.8	46.7	16.2	10.5	45.0	23.8
+ MTW9911	102.6	23.0			69.6	46.0	13.5	15.0*	44.9	24.5
Neeley	104.4	19.9			72.7	42.3	18.1	10.2	44.9	23.1
Harding	98.3	21.5			75.3	47.8*	14.3	10.2	44.2	23.0
Morgan	98.6	20.7			68.4	46.7	16.5	12.5	44.1	24.4
# NuFrontier (HWW)	95.7	22.7			69.2	48.3*	16.9	12.1	44.1	24.6
NuWest (HWW)	87.0	25.2*			71.5	52.4*	16.0	12.8	44.1	26.2*
Rocky	93.7	25.3*			69.5	50.7*	11.7	13.6	43.9	25.5*
Elkhorn	96.3	19.5			78.7*	42.6	17.6	9.8	43.8	21.9
BigSky	99.8	21.1			73.2	46.5	12.0	11.2	43.6	22.2
+ MT99116	94.3	21.9			66.5	48.0*	21.9*	9.2	43.4	25.1*
Bighorn	97.1	18.4			73.9	47.6	11.7	12.5	43.2	22.2
Norstar	94.0	20.9			77.1	38.3	21.6*	9.7	43.2	22.5
Windstar	93.1	23.1			70.2	50.5*	10.3	11.5	43.0	23.6
+ MT9929	90.4	20.5			71.4	47.2	12.8	8.4	42.6	23.1
# CDC Falcon	91.9	26.4*			62.5	50.2*	11.2	8.9	42.2	24.6
Culver	90.2	20.5			65.3	46.9	19.0	9.2	42.0	24.0
Erhardt	90.9	21.0			71.2	43.2	12.2	10.3	41.9	22.4
Prowers 99	94.5	19.9			68.5	43.6	11.1	12.0	41.9	22.0
Ransom	94.6	20.2			61.1	43.6	17.5	10.9	41.8	23.6
Nuplains (HWW)	91.8	22.3			72.1	46.0	10.0	12.6	41.6	22.0
Vanguard	90.5	22.5			66.4	46.6	14.0	15.5*	41.6	24.1
Rampart	88.6	22.4			59.8	42.5	17.8	14.3*	41.4	24.7
# NuHorizon (HWW)	92.2	24.3*			60.0	49.4*	9.8	8.7	41.0	23.4
Halt	83.6	21.5			67.9	44.2	10.0	9.5	39.4	21.2
McGuire	85.2	19.4			65.4	38.6	15.7	9.8	39.4	21.2
Average	99.3	22.2			73.1	47.2	15.2	11.9	44.8	24.1
LSD (0.05)	7.5	3.2			10.8	6.7	4.9	4.1	2.8	2.6
C.V.	4.4	8.2			9.1	8.2	18.8	21.0	9.6	13.3

+ = new for 2001, # = paid entry

** = indicates highest yielding variety within a column

* = indicates varieties yielding equal to highest yielding variety within a column based on Fisher's protected LSD (p=0.05)

Table 2. 2001 Intrastate Winter Wheat Evaluation (Exp.35): 6 Location Test Weight (lb/bu)

Cultivar/Line	Bozeman LAT	Havre LAT	Kalispell RCB	Moccasin LAT	Huntley Bulk	Conrad Bulk	6 Loc Average
Nuplains (HWW)	64.9*	62.0**	63.8*	60.3*	60.5	62.1	62.3**
# NuHorizon (HWW)	65.1*	60.7	62.9	60.7**	61.3	61.0	62.0*
Promontory	65.3**	61.0	63.9**	58.9*	60.6	61.7	61.9*
# NuFrontier (HWW)	65.0*	61.3	62.9	59.8*	59.4	62.1	61.8*
Prowers 99	64.9*	60.7	63.6*	59.7*	59.2	61.7	61.6*
Rocky	64.8*	60.0	63.2	59.6*	59.5	61.7	61.5*
Erhardt	64.1	60.1	63.0	59.3*	60.0	60.5	61.2
DW Red	63.8	60.4	62.4	59.4*	60.6	60.0	61.1
BigSky	64.1	60.8	63.3	59.4*	59.5	59.0	61.0
# BZ9W96-895	64.2	60.2	63.4*	58.7*	58.7	60.0	60.9
Halt	63.6	58.8	61.7	59.3*	60.6	61.2	60.9
+ MTR9997	64.0	59.8	62.8	57.8	60.4	60.8	60.9
Bighorn	63.6	60.0	62.8	58.0	59.3	60.5	60.7
Quantum 542	64.0	58.9	62.8	59.4*	59.3	59.7	60.7
NuSky (HWW)	62.8	60.3	62.2	59.1*	59.9	59.5	60.6
Manning	64.1	59.3	62.4	57.2	59.9	59.8	60.5
+ MT9982	63.2	60.4	62.3	58.2	60.6	58.4	60.5
+ N95L1229	63.5	59.5	61.9	57.3	60.7	60.0	60.5
+ MT9929	64.3	58.7	62.6	58.1	59.0	59.4	60.4
Vanguard	64.0	58.6	62.0	57.7	59.4	60.4	60.4
Windstar	63.4	58.7	61.8	59.0*	60.2	59.5	60.4
# BZ9W97-761 (HWW)	62.4	59.4	62.1	56.9	60.0	60.8	60.3
NuWest (HWW)	62.9	59.9	62.3	59.3*	58.2	59.0	60.3
Tiber	64.2	60.7	63.1	55.7	58.6	59.4	60.3
+ MT9951	63.5	58.7	62.3	58.3*	60.0	57.7	60.1
+ MTW9911	62.1	59.4	61.1	58.4*	60.1	59.7	60.1
Norstar	64.0	59.8	62.8	57.6	60.2	56.2	60.1
Blizzard	64.2	60.2	62.4	55.7	59.3	58.0	60.0
# BZ9W96-919	64.5	59.1	62.8	55.8	59.2	58.7	60.0
# Golden Spike (HWW)	63.0	58.9	62.3	57.5	60.7	57.6	60.0
McGuire	63.5	58.5	61.9	57.4	60.1	58.7	60.0
Morgan	63.2	59.4	62.0	56.9	60.6	58.0	60.0
+ MT99116	64.4	57.8	61.7	58.3*	59.2	57.9	59.9
Rampart	64.1	58.3	61.6	58.5*	58.2	58.7	59.9
Elkhorn	63.2	58.3	62.1	57.1	60.0	57.9	59.8
+ MT9904	63.1	58.5	61.9	57.2	59.3	59.0	59.8
# CDC Falcon	63.5	57.4	60.8	58.6*	58.8	59.1	59.7
Ransom	63.4	58.2	61.7	57.3	59.1	58.6	59.7
Gary (HWW)	63.7	59.7	62.2	54.8	59.1	58.3	59.6
Harding	62.9	57.8	61.7	55.6	60.3	59.0	59.6
+ MT9909	63.4	58.3	61.5	56.7	59.0	58.1	59.5
Culver	62.5	59.6	61.6	55.8	57.1	59.8	59.4
MT9426	64.0	57.8	62.0	54.9	60.5	57.2	59.4
MT9513	63.0	58.3	61.6	55.4	59.3	58.7	59.4
+ MT9949	62.9	58.1	61.4	56.0	59.3	56.9	59.1
Utah 100	62.6	58.5	61.2	53.3	60.6	56.9	58.9
+ MT9989	62.6	57.8	60.8	55.5	59.4	56.7	58.8
Judith	62.3	58.0	60.8	55.3	59.0	56.9	58.7
Neeley	63.7	58.2	60.7	54.1	59.7	56.0	58.7
Average	63.7	59.3	62.2	57.6	59.7	59.1	60.3
LSD (0.05)	0.5	0.6	0.5	2.4			1.0
C.V.	0.5	0.6	0.5	2.4			1.5

+ = new for 2001, # = paid entry

** = highest yielding variety within a column

* = varieties yielding equal to highest yielding variety within a column based on Fisher's protected LSD (p=0.05)

Table 3. 2001 Intrastate Winter Wheat Test (Exp. 35): 6 Location Protein (%)

Cultivar/Line	Bozeman Bulk	Havre Bulk	Kalispell Bulk	Moccasin Bulk	Huntley Bulk	Conrad Bulk	6 Loc Average
Erhardt	14.5	14.8	14.0	16.8	18.1	15.7	15.7**
McGuire	13.7	15.7	14.4	16.3	17.9	15.4	15.6*
Rampart	14.4	14.8	14.2	16.2	16.8	15.4	15.3*
Vanguard	14.7	14.8	14.5	16.3	16.6	15.1	15.3*
+ MT9929	13.8	15.1	13.6	16.1	17.3	15.4	15.2*
BigSky	14.1	14.9	13.7	16.0	16.9	14.8	15.1
Nuplains (HWW)	14.0	14.7	13.3	15.8	17.4	15.0	15.0
+ MT9904	14.0	14.4	13.1	15.8	17.0	14.8	14.9
Tiber	13.8	14.1	13.4	15.7	17.2	14.2	14.7
+ MTR9997	13.3	14.8	13.7	16.1	16.4	14.0	14.7
Culver	13.5	14.1	13.8	15.1	16.6	15.1	14.7
Bighorn	13.6	14.0	13.4	15.7	16.8	14.4	14.7
Quantum 542	14.0	13.8	14.2	15.6	15.3	14.9	14.6
+ MTW9911	13.5	13.9	13.3	16.4	17.1	13.6	14.6
Harding	13.5	14.1	13.4	15.5	16.4	14.8	14.6
# BZ9W97-761 (HWW)	13.7	13.8	13.1	15.8	17.2	14.0	14.6
MT9513	13.5	14.2	13.4	15.8	16.4	14.2	14.6
Judith	12.9	14.7	12.8	15.5	16.5	15.0	14.6
Blizzard	13.8	14.1	13.5	15.8	16.2	13.9	14.6
Morgan	12.8	14.1	13.4	16.0	16.0	14.8	14.5
Elkhorn	13.1	14.3	13.1	15.8	16.3	14.4	14.5
Halt	14.3	13.6	13.4	15.7	15.0	14.5	14.4
NuWest (HWW)	13.7	14.2	13.1	15.0	16.3	14.1	14.4
DW Red	13.2	14.0	13.1	14.6	16.9	14.3	14.4
+ MT9949	12.8	14.3	13.1	15.1	15.8	14.7	14.3
Norstar	12.5	14.4	12.7	16.1	16.1	13.9	14.3
Utah 100	13.1	13.5	13.0	14.9	16.7	14.3	14.3
+ MT99116	13.3	14.1	12.9	15.0	15.6	14.2	14.2
+ N95L1229	13.4	14.2	13.2	15.4	15.4	13.5	14.2
+ MT9982	12.6	13.9	12.7	15.1	16.1	14.5	14.2
+ MT9909	12.9	13.7	13.4	15.2	15.2	14.4	14.1
# BZ9W96-895	13.3	14.0	13.0	15.6	15.2	13.7	14.1
+ MT9951	12.4	14.1	12.3	15.5	16.5	14.0	14.1
NuSky (HWW)	13.8	13.9	13.3	14.8	15.7	13.1	14.1
Windstar	13.4	13.5	13.2	15.2	15.3	14.0	14.1
Ransom	12.5	13.4	13.3	15.5	15.6	13.9	14.0
Promontory	12.7	13.2	13.2	14.6	15.9	14.3	14.0
Prowers 99	13.4	13.6	13.3	15.2	14.6	13.6	14.0
Rocky	13.1	13.6	13.0	14.5	15.7	13.7	13.9
Manning	13.0	13.6	13.1	15.3	14.8	13.7	13.9
MT9426	12.7	14.1	13.0	15.3	15.2	13.1	13.9
+ MT9989	12.6	14.3	12.4	15.1	14.4	14.5	13.9
# Golden Spike (HWW)	12.2	13.5	12.3	15.1	15.9	14.0	13.8
# CDC Falcon	13.2	13.7	13.0	14.8	14.2	14.0	13.8
# BZ9W96-919	12.1	13.3	12.7	15.9	14.0	13.9	13.7
# NuHorizon (HWW)	13.0	13.3	12.9	14.6	14.1	13.8	13.6
Gary (HWW)	12.6	13.4	12.2	14.4	15.3	12.9	13.5
Neeley	12.5	13.2	11.8	15.1	14.8	13.2	13.4
# NuFrontier (HWW)	11.7	12.1	11.7	14.0	14.0	12.6	12.7
Average	13.3	14.0	13.2	15.4	16.0	14.2	14.4
LSD (0.05)							0.5
C.V.							3.2

+ = new for 2001, # = paid entry ** = indicates highest yielding variety within a column

* = indicates varieties yielding equal to highest yielding variety within a column based on Fisher's protected LSD (p=0.05)

Table 4. 2001 Intrastate Winter Wheat Test (Exp. 35): 6 Location Plant Height (inches).

Cultivar/Line	Bozeman RCB	Havre LAT	Kalispell RCB	Moccasin LAT	Huntley RCB	Conrad 1 rep	6 Loc Average
# NuHorizon (HWW)	22.6	17.2	20.5	24.1	10.2	18	18.8
Halt	24.1	18.3	20.5	25.0	13.7	16	19.6
# CDC Falcon	24.5	18.1	21.7	25.4	11.6	18	19.9
Nuplains (HWW)	24.4	17.2	23.1	26.3	13.3	17	20.2
Bighorn	25.6	18.3	23.3	26.0	11.7	17	20.3
# NuFrontier (HWW)	24.8	17.4	24.4	24.3	12.2	20	20.5
# BZ9W96-919	26.8	18.4	24.3	26.3	12.2	18	21.0
+ N95L1229	26.4	17.6	23.7	26.4	14.3	20	21.4
MT9426	26.7	17.9	23.7	26.1	13.9	22	21.7
+ MT9929	27.3	18.6	24.8	28.6	11.5	20	21.8
Culver	27.4	18.1	25.1	27.8	13.7	19	21.9
+ MT99116	26.0	19.4	24.4	27.6	13.0	21	21.9
+ MT9909	28.4	18.0	24.8	28.4	12.9	19	21.9
+ MTW9911	26.1	17.6	25.2	26.5	13.7	23	22.0
DW Red	27.6	18.5	28.2	27.0	12.4	19	22.1
McGuire	25.6	18.3	24.5	28.9	13.3	23	22.3
Erhardt	27.8	18.7	25.2	27.6	13.6	21	22.3
+ MT9904	29.1	18.5	26.1	28.7	12.6	19	22.3
# BZ9W96-895	28.2	19.2	25.3	26.7	14.9	22	22.7
Harding	29.8	19.6	26.1	29.3	12.5	19	22.7
Manning	28.6	18.7	26.9	27.4	15.0	21	22.9
Windstar	28.3	20.1	27.2	27.1	13.2	22	23.0
Rocky	28.6	18.2	26.1	33.7	12.6	19	23.0
Rampart	29.9	18.7	26.4	30.2	14.9	19	23.2
Prowers 99	29.8	19.1	25.6	30.1	14.2	21	23.3
Promontory	27.8	18.4	26.9	29.5	14.3	23	23.3
Ransom	30.4	18.4	26.0	30.1	15.4	20	23.4
NuWest (HWW)	29.4	20.8	27.0	29.7	16.1	18	23.5
+ MTR9997	29.8	18.9	26.8	29.0	15.0	22	23.6
Vanguard	28.4	18.9	27.9	30.9	14.5	21	23.6
+ MT9951	30.2	19.6	29.5	30.2	12.2	21	23.8
BigSky	30.5	19.8	28.2	29.6	13.7	21	23.8
# BZ9W97-761 (HWW)	29.0	20.7	27.5	29.5	16.2	20	23.8
Blizzard	30.2	19.6	27.1	30.0	13.2	23	23.9
NuSky (HWW)	30.7	20.5	26.9	30.4	15.6	19	23.9
MT9513	29.5	20.6	26.7	30.2	15.2	21	23.9
Morgan	31.2	19.8	25.9	28.9	14.8	23	23.9
Quantum 542	31.6	19.3	27.9	28.8	15.7	21	24.1
+ MT9982	28.7	21.3	26.9	29.6	15.6	23	24.2
Judith	30.4	21.5	26.9	30.5	15.6	21	24.3
+ MT9989	30.6	19.6	28.2	31.4	15.2	23	24.7
+ MT9949	30.5	20.2	28.7	30.7	16.1	22	24.7
# Golden Spike (HWW)	30.2	20.3	28.5	28.7	17.8	23	24.8
Gary (HWW)	30.6	20.4	27.4	29.2	17.0	24	24.8
Neeley	31.7	20.3	26.8	30.7	17.4	22	24.8
Utah 100	31.1	21.8	28.5	28.1	16.1	24	24.9
Tiber	32.5	18.5	31.9	31.4	16.5	21	25.3
Elkhorn	35.6	21.3	33.7	33.6	16.8	23	27.3
Norstar	39.4	22.9	38.3	37.3	21.1	25	30.7
Average	28.9	19.2	26.5	28.8	14.4	20.8	23.1
LSD (0.05)	1.8	2.0	3.0	3.4	3.1		1.6
C.V.	3.7	6.2	7.0	6.9	13.0		5.9

+ = new for 2001, # = paid entry

Table 5. Intrastate Winter Wheat Test (Exp. 35): 6 Location Heading Date (Julian).

Cultivar/Line	Bozeman LAT	Havre LAT	Kalispell RCB	Moccasin LAT	Huntley LAT	Conrad 1 rep	6 Loc Average
Halt	159.3	159.9	153.3	161.7	152.1	157	157.2
McGuire	160.3	159.4	153.0	164.1	150.3	160	157.9
Culver	159.9	159.9	151.7	164.6	153.3	159	158.1
# NuFrontier (HWW)	160.4	160.0	152.7	162.6	155.7	162	158.9
Quantum 542	161.9	159.0	154.0	163.7	152.0	163	158.9
# NuHorizon (HWW)	160.9	160.4	152.0	165.3	158.7	159	159.4
Windstar	161.1	159.4	155.7	162.9	154.8	163	159.5
Prowers 99	161.9	159.7	156.0	164.9	156.5	162	160.2
Rocky	161.9	159.7	156.3	166.3	158.2	161	160.6
# BZ9W96-895	162.6	160.1	154.7	166.3	157.3	163	160.7
Vanguard	162.2	160.7	154.3	166.8	158.5	162	160.8
+ MT99116	163.2	160.0	157.0	166.9	154.8	163	160.8
+ MT9949	165.3	160.0	158.0	165.1	153.9	163	160.9
Manning	165.3	159.7	155.3	165.9	157.3	163	161.1
# CDC Falcon	162.1	159.6	157.3	165.2	160.0	163	161.2
Judith	163.8	160.1	158.0	165.6	156.0	164	161.3
+ MT9989	164.2	160.9	159.3	164.5	155.6	163	161.3
+ MTW9911	164.0	160.6	155.7	164.4	157.8	165	161.3
Rampart	165.3	160.7	154.7	167.0	158.3	162	161.3
Promontory	162.3	159.4	156.3	166.2	162.0	162	161.4
+ MT9904	163.1	160.3	157.0	164.7	162.6	162	161.6
Nuplains (HWW)	164.0	160.5	155.3	167.5	161.3	162	161.8
BigSky	166.9	160.0	159.3	165.1	156.7	163	161.8
+ MT9909	164.3	160.3	157.7	167.4	158.6	163	161.9
+ N95L1229	162.7	160.7	157.0	167.7	159.7	165	162.1
Harding	163.9	160.3	158.0	167.2	160.3	164	162.3
NuWest (HWW)	167.1	160.5	159.0	167.4	157.8	162	162.3
DW Red	167.8	159.9	157.0	166.5	160.6	163	162.5
Ransom	167.8	161.8	158.3	167.3	157.6	163	162.6
Bighorn	166.8	159.9	160.0	166.2	158.6	165	162.8
NuSky (HWW)	167.7	160.5	159.3	167.0	159.1	163	162.8
+ MT9951	165.8	160.8	159.7	166.6	159.6	165	162.9
Erhardt	167.7	160.6	157.0	168.2	159.1	165	162.9
Gary (HWW)	167.7	161.6	158.0	167.8	157.1	166	163.0
+ MTR9997	166.7	161.7	159.3	165.1	160.6	165	163.1
# BZ9W97-761 (HWW)	167.0	162.8	158.3	167.4	158.0	165	163.1
+ MT9982	168.2	161.8	160.3	167.0	157.0	165	163.2
Utah 100	168.4	161.6	158.7	166.9	159.8	164	163.2
+ MT9929	166.4	160.8	158.3	168.0	161.2	165	163.3
Tiber	167.2	161.0	160.3	167.6	160.2	165	163.6
MT9426	167.6	161.6	160.0	167.9	159.7	165	163.6
# BZ9W96-919	167.5	163.0	159.7	168.5	158.5	165	163.7
MT9513	167.5	161.5	160.3	169.4	158.6	165	163.7
Neeley	167.8	162.3	158.7	169.9	158.6	166	163.9
Elkhorn	168.5	161.7	161.0	168.3	159.2	165	164.0
# Golden Spike (HWW)	168.9	163.2	161.3	167.2	158.1	166	164.1
Blizzard	169.7	162.6	158.7	169.5	159.7	165	164.2
Morgan	169.4	162.4	160.3	168.5	160.2	168	164.8
Norstar	172.2	165.2	163.7	170.7	159.7	168	166.6
Average	165.2	160.8	157.5	166.5	158.0	163.5	161.9
LSD (0.05)	1.9	1.6	2.8	3.0	3.3		1.7
C.V.	0.7	0.6	1.1	1.1	1.2		1.9

+ = new for 2001, # = paid entry