

PROJECT TITLE: Statewide Spring Wheat Variety Performance – 2014 (4W4640)

PRINCIPAL INVESTIGATION:

L. Talbert, Spring Wheat breeder, Bozeman

Personnel:

Hwa-Young Heo, Department of Plant Sciences, Bozeman

D.M. Wichman, CARC, Moccasin

J.L.A. Eckhoff, EARC, Sidney

P. Lamb, NARC, Havre

R.N. Stougaard, NWARC Kalispell

K. Kephart, SARC, Huntley

J. Miller, WTARC, Conrad

OBJECTIVE: To evaluate new and existing varieties and experimental lines of spring wheat under various growing conditions and environments in Montana.

RESULTS: The 2014 Advanced Spring Wheat yield trial was grown at one irrigated and seven rain-fed sites across Montana. The irrigated site was at Sidney. Rain-fed sites were at Havre, Sidney, Moccasin, Huntley, Conrad, Bozeman and Kalispell. Replicated multiple-row plots were established at all locations using standard research techniques. Summaries of yield, test weight, protein content, heading date, and plant height are shown in Tables 1, 2, 3, 4, and 5, respectively. A summary of averaged data across sites is shown in Table 6.

Highest yielding varieties at individual sites were LimaGrain143 at **Kalispell**, MT1349 at **Bozeman**, LimaGrain143 at **Huntley**, MT1219 at **Moccasin**, LimaGrain142 at **Conrad**, MT1319 at **Havre**, MT1320 at **Sidney dryland**, and Volt at **Sidney irrigated**. Highest yielding line on a statewide basis was MT1316 (Table 1).

The entry with the highest test weight on a statewide basis was Volt (Table 2). The entry with the highest protein on a statewide basis was Egan (Table 3). Earliest heading entry on a statewide basis was MT1304, while latest was Thatcher (Table 4). Shortest entry was WB143 while tallest was Thatcher (Table 5). An overall summary for the advanced spring wheat nursery grown across Montana is shown in Table 6.

SUMMARY: The statewide spring wheat trial is conducted under dryland and irrigated conditions each year. All experiments reported under this project are of the replicated small plot type. These trials provide important information about performance of experimental lines and varieties from Montana, other states, and private companies. Regional spring wheat producers make decisions on what varieties to grow based on data from these trials.

FUNDING SUMMARY: The Statewide Spring Wheat Performance Trials are not a component of the Research Center's umbrella project. This information is presented here for the convenience of the MWBC and the growers who generate MWBC check-off dollars.

FUTURE PLANS: These trials will continue in 2015.

Table 1. 2014 yield (bu/ac) summary for the advanced spring wheat nursery grown across Montana.

ID	Kalispell, rain-fed	Bozeman, rain-fed	Huntley, rain-fed	Moccasin, rain-fed	Conrad, rain-fed	Havre, rain-fed	Sidney, rain-fed	Sidney, irrigated	Average	rank
Thatcher	87.9	47.8	29.1	31.3	64.5	33.0	33.5	71.6	49.8	64
Fortuna	97.5	71.9	42.1	<u>39.2</u>	80.6	37.2	42.6	81.5	61.6	62
McNeal	<u>121.9</u>	72.7	39.6	<u>41.8</u>	<u>92.7</u>	41.5	42.8	97.5	<u>68.8</u>	22
Reeder	104.5	74.3	42.2	38.7	<u>104.7</u>	<u>45.7</u>	46.0	<u>113.6</u>	<u>71.2</u>	9
Choteau	108.0	72.5	39.6	37.6	<u>73.9</u>	40.2	39.2	101.4	64.1	58
Vida	110.8	<u>86.5</u>	44.2	35.8	<u>94.0</u>	<u>47.9</u>	<u>49.6</u>	104.0	<u>71.6</u>	8
Duclair	106.5	73.4	44.6	35.8	<u>94.7</u>	<u>46.9</u>	45.1	<u>110.2</u>	<u>69.7</u>	15
Corbin	<u>115.6</u>	69.3	44.1	35.7	<u>98.0</u>	38.8	31.1	96.2	66.1	47
Volt	111.1	77.8	<u>48.0</u>	<u>39.7</u>	<u>97.6</u>	<u>43.8</u>	40.6	<u>119.0</u>	<u>72.2</u>	4
ONeal	99.4	78.1	32.2	<u>41.2</u>	86.5	41.8	45.3	<u>115.2</u>	67.5	32
Jedd	85.8	64.0	32.9	<u>40.9</u>	75.8	40.3	46.0	89.6	59.4	63
WB Gunnison	<u>116.1</u>	72.7	40.0	37.3	89.3	<u>43.4</u>	28.3	103.9	66.4	41
Mott	111.3	76.4	38.8	34.5	75.4	35.7	39.1	<u>113.1</u>	65.5	52
WB9879CL	102.6	73.1	38.9	<u>45.1</u>	<u>93.6</u>	40.5	32.6	104.4	66.4	43
Brennan	94.0	71.0	<u>46.7</u>	<u>42.7</u>	79.3	41.5	<u>48.9</u>	100.1	65.5	53
SY Tyra	101.1	78.5	32.5	38.1	91.2	<u>46.3</u>	42.1	105.2	66.9	37
SY605 CL	105.5	71.5	44.9	32.2	89.6	40.1	39.5	106.3	66.2	46
SY Soren	110.7	76.0	38.1	<u>40.8</u>	<u>92.5</u>	42.5	46.6	106.7	<u>69.2</u>	17
SY Rowyn	109.0	78.6	44.6	30.2	<u>104.3</u>	40.7	<u>51.4</u>	<u>110.3</u>	<u>71.1</u>	10
SY Ingmar	100.3	74.0	39.3	36.7	81.3	<u>44.9</u>	44.9	105.3	65.8	49
Buck Pronto	110.7	76.9	<u>48.2</u>	36.7	<u>94.4</u>	37.0	21.5	105.5	66.4	42
LIMAGR141	<u>116.4</u>	80.9	<u>46.3</u>	<u>40.0</u>	<u>99.8</u>	<u>43.1</u>	34.8	<u>113.3</u>	<u>71.8</u>	6
LIMAGR142	<u>114.3</u>	75.3	39.1	33.4	<u>106.4</u>	35.9	42.6	<u>117.0</u>	<u>70.5</u>	12
LIMAGR143	<u>130.8</u>	79.9	<u>53.1</u>	32.4	<u>100.8</u>	39.8	26.1	<u>111.5</u>	<u>71.8</u>	7
WB141	108.8	73.2	30.6	<u>39.1</u>	88.4	36.3	33.4	108.7	64.8	57
WB142	110.7	75.5	42.0	38.5	89.9	33.2	42.3	101.3	66.7	39
WB143	112.4	76.6	<u>48.0</u>	36.4	<u>95.8</u>	39.6	46.1	97.7	<u>69.1</u>	19
WB144	104.6	74.8	39.1	33.4	81.4	38.8	41.5	98.7	64.0	59
MT 1007	100.4	77.4	35.2	<u>42.3</u>	83.0	42.1	42.2	98.8	65.2	54
MT 1118	109.2	76.1	43.3	<u>41.3</u>	<u>91.7</u>	41.2	43.3	102.8	<u>68.6</u>	23
MT 1203	109.6	73.1	44.0	<u>41.7</u>	<u>93.6</u>	42.1	26.9	103.5	66.8	38
MT 1205	98.3	76.2	35.8	<u>44.7</u>	<u>101.3</u>	42.0	35.2	92.4	65.7	50
MT 1206	109.2	77.3	36.7	35.2	86.2	39.3	42.8	105.8	66.6	40
MT 1219	109.2	79.5	33.9	<u>46.2</u>	<u>101.5</u>	<u>44.3</u>	33.7	<u>111.5</u>	<u>70.0</u>	14
MT 1222	98.3	73.8	<u>50.1</u>	38.3	87.7	39.6	45.2	95.8	66.1	48
MT 1224	107.3	74.1	35.9	<u>43.2</u>	88.8	<u>47.7</u>	45.8	104.1	68.4	25

(continued)

Table 1 (continued). 2014 yield (bu/ac) summary for the advanced spring wheat nursery grown across Montana.

ID	Kalispell, rain-fed	Bozeman, rain-fed	Huntley, rain-fed	Moccasin, rain-fed	Conrad, rain-fed	Havre, rain-fed	Sidney, rain-fed	Sidney, irrigated	Average	rank
MT 1225	<u>119.3</u>	81.9	35.9	<u>40.2</u>	<u>93.1</u>	42.2	35.3	105.5	<u>69.2</u>	18
MT 1227	<u>112.0</u>	70.2	36.4	<u>39.2</u>	83.2	<u>44.1</u>	41.8	103.3	66.3	44
MT 1228	97.7	72.5	26.6	<u>41.2</u>	85.3	<u>46.3</u>	43.5	93.1	63.3	60
MT 1230	113.5	78.4	41.1	<u>40.9</u>	84.5	42.3	45.9	104.0	<u>68.8</u>	21
MT 1231	100.2	78.2	41.6	<u>40.6</u>	81.9	41.6	43.3	<u>109.9</u>	67.2	33
MT 1234	<u>117.6</u>	75.0	37.6	<u>41.3</u>	83.3	40.1	29.5	100.8	65.7	51
MT 1236	113.0	64.1	44.4	35.0	78.7	40.4	41.6	103.3	65.1	55
MT 1264	104.9	75.8	44.7	31.6	<u>94.1</u>	39.7	<u>48.0</u>	101.6	67.6	31
MT 1273	111.6	82.4	30.7	37.0	<u>95.3</u>	<u>45.4</u>	36.0	107.2	68.2	27
MT 1276	<u>116.9</u>	74.6	44.1	<u>41.0</u>	<u>91.4</u>	<u>45.7</u>	30.5	102.0	68.3	26
Egan	109.2	59.5	45.0	37.6	77.6	37.8	33.7	101.0	62.7	61
MT 1304	108.7	72.2	39.2	<u>43.1</u>	<u>100.5</u>	<u>45.8</u>	<u>49.3</u>	<u>109.7</u>	<u>71.1</u>	11
MT 1315	93.1	75.5	43.1	37.7	91.2	40.5	<u>50.1</u>	98.5	66.2	45
MT 1316	<u>118.7</u>	78.3	<u>47.6</u>	<u>41.5</u>	<u>93.7</u>	<u>44.2</u>	<u>51.6</u>	<u>118.5</u>	<u>74.3</u>	1
MT 1319	108.7	82.7	<u>51.5</u>	<u>45.9</u>	<u>99.7</u>	<u>48.1</u>	45.6	<u>109.4</u>	<u>74.0</u>	2
MT 1320	112.0	82.0	<u>47.8</u>	<u>41.6</u>	<u>94.1</u>	<u>44.6</u>	<u>54.4</u>	100.8	<u>72.2</u>	5
MT 1331	98.2	86.1	38.1	<u>44.5</u>	88.5	<u>46.6</u>	44.5	104.2	<u>68.8</u>	20
MT 1333	105.2	78.4	44.1	<u>44.4</u>	80.9	<u>44.1</u>	35.1	103.3	66.9	36
MT 1336	100.2	78.7	41.6	<u>41.7</u>	88.1	43.0	46.4	103.1	67.9	30
MT 1337	94.9	82.9	45.2	<u>39.5</u>	<u>93.7</u>	<u>44.0</u>	<u>51.0</u>	103.1	<u>69.3</u>	16
MT 1338	109.2	83.6	<u>48.9</u>	<u>45.6</u>	<u>94.3</u>	<u>47.5</u>	<u>51.6</u>	99.8	<u>72.6</u>	3
MT 1340	103.9	73.0	41.8	38.4	82.1	42.3	45.2	<u>110.0</u>	67.1	34
MT 1341	103.7	78.8	45.3	<u>44.2</u>	88.8	42.8	31.3	108.5	67.9	29
MT 1343	109.3	65.2	38.0	37.6	83.4	<u>47.3</u>	44.3	<u>111.0</u>	67.0	35
MT 1346	112.3	74.6	45.3	<u>39.9</u>	84.8	41.2	46.9	100.2	68.2	28
MT 1348	108.4	76.0	<u>49.5</u>	<u>45.0</u>	<u>95.5</u>	<u>46.8</u>	35.0	107.1	<u>70.4</u>	13
MT 1349	108.4	<u>91.7</u>	35.8	37.0	81.8	41.3	<u>51.0</u>	101.1	68.5	24
MT 1360	101.5	74.1	41.3	35.9	82.3	41.5	42.2	100.0	64.9	56
site mean	107.2	75.4	41.2	39.2	89.3	42.1	41.3	103.8	67.4	
CV (S/mean)	9.8	4.5	10.3	11.9	10.8	7.5	11.2	5.9	8.7	
Probability	<0.01	<0.001	<0.001	<0.001	<0.001	<.0001	<0.001	<0.001	<0.001	
LSD (.05)	16.9	5.5	6.9	7.5	15.2	5.1	7.5	9.9	5.8	

1) Underlined: highest value;

2) Double underlined: equal value to highest value within a column based LSD (0.05)

Table 2. 2014 test weight (lb/bu) summary for the advanced spring wheat nursery grown across Montana.

ID	Kalispell, rain-fed	Bozeman, rain-fed	Huntley, rain-fed	Moccasin, rain-fed	Conrad, rain-fed	Havre, rain-fed	Sidney, rain-fed	Sidney, irrigated	Average	rank
Thatcher	59.3	56.9	49.5	58.8	58.3	54.7	59.0	58.0	56.8	59
Fortuna	61.4	62.1	<u>52.7</u>	60.5	60.3	58.7	61.0	58.5	59.4	13
McNeal	60.5	58.7	49.8	57.7	60.8	56.8	60.0	59.0	57.9	47
Reeder	60.8	58.9	50.7	60.2	61.5	58.5	62.5	60.0	59.1	17
Choteau	59.9	60.3	51.0	59.2	58.5	58.3	60.5	58.5	58.3	37
Vida	59.9	58.1	48.6	58.1	61.3	58.6	61.0	58.5	58.0	43
Duclair	59.7	60.8	50.2	56.0	60.9	58.1	60.0	59.0	58.1	40
Corbin	61.0	59.9	49.7	57.9	<u>61.9</u>	59.5	61.0	59.5	58.8	25
Volt	61.3	61.8	<u>53.5</u>	<u>62.0</u>	<u>63.3</u>	60.1	62.0	<u>61.5</u>	<u>60.7</u>	<u>1</u>
ONeal	60.5	59.2	49.4	60.8	61.0	58.3	61.5	59.5	58.8	28
Jedd	59.2	61.1	49.5	60.1	59.6	<u>60.8</u>	62.0	59.5	59.0	19
WB Gunnison	<u>61.8</u>	58.7	<u>51.3</u>	58.5	<u>62.4</u>	58.2	61.0	59.5	58.9	21
Mott	59.9	61.1	<u>51.2</u>	59.9	59.3	58.1	61.5	59.0	58.8	29
WB9879CL	60.0	61.1	50.3	60.6	61.0	58.6	60.5	59.0	58.9	22
Brennan	59.7	62.3	<u>53.4</u>	61.0	61.1	<u>61.5</u>	61.5	60.0	<u>60.1</u>	3
SY Tyra	59.8	60.4	49.4	59.7	59.9	<u>61.5</u>	62.0	59.0	59.0	20
SY605 CL	61.5	62.1	<u>51.2</u>	60.3	<u>61.9</u>	60.5	62.0	60.0	<u>59.9</u>	4
SY Soren	60.6	58.8	50.7	59.0	61.1	59.5	60.5	60.5	58.8	23
SY Rowyn	59.5	59.9	<u>52.2</u>	58.4	61.0	58.8	60.0	60.0	58.7	30
SY Ingmar	60.7	59.4	48.8	58.0	60.9	<u>60.6</u>	61.5	60.5	58.8	26
Buck Pronto	60.3	59.4	50.3	58.2	59.7	59.3	58.5	60.0	58.2	39
LIMAGR141	58.7	56.9	47.3	56.4	58.8	58.3	59.5	58.0	56.7	60
LIMAGR142	61.4	60.8	<u>51.1</u>	57.6	61.5	59.2	61.0	60.5	59.1	18
LIMAGR143	61.5	58.9	<u>51.2</u>	57.5	61.2	58.1	60.0	60.0	58.6	33
WB141	57.7	57.7	45.6	56.0	57.6	56.4	58.5	57.5	55.9	62
WB142	59.3	60.3	47.8	56.6	60.1	59.3	60.0	58.6	57.8	50
WB143	59.6	60.8	<u>52.5</u>	58.6	60.6	59.4	60.0	59.0	58.8	24
WB144	<u>61.8</u>	60.2	<u>51.5</u>	59.9	<u>61.7</u>	60.3	62.5	59.0	59.6	12
MT 1007	60.5	61.9	49.9	<u>62.0</u>	60.9	59.9	62.5	59.5	59.6	10
MT 1118	57.4	58.4	47.9	56.0	58.5	57.6	58.5	57.5	56.5	61
MT 1203	59.7	59.7	50.4	58.7	61.1	58.8	60.0	58.0	58.3	35
MT 1205	60.1	61.4	49.8	59.9	61.2	60.0	61.5	60.0	59.2	15
MT 1206	61.1	60.5	49.4	60.3	60.5	58.5	61.0	59.0	58.8	27
MT 1219	60.1	60.6	47.1	60.2	60.6	58.2	61.5	58.0	58.3	36
MT 1222	58.8	59.8	50.7	59.1	59.9	57.7	60.5	58.0	58.1	41
MT 1224	58.9	59.4	47.4	57.7	59.0	58.2	60.5	57.0	57.3	54

(continued)

Table 2 (continued). 2014 test weight (lb/bu) summary for the advanced spring wheat nursery grown across Montana.

ID	Kalispell, rain-fed	Bozeman, rain-fed	Huntley, rain-fed	Moccasin, rain-fed	Conrad, rain-fed	Havre, rain-fed	Sidney, rain-fed	Sidney, irrigated	Average	rank
MT 1225	58.5	60.5	49.0	58.4	59.3	56.9	59.5	57.5	57.5	53
MT 1227	58.4	57.2	45.9	55.8	56.4	54.0	58.5	56.5	55.3	64
MT 1228	54.4	60.4	48.6	59.6	58.2	57.3	59.5	58.5	57.1	55
MT 1230	58.9	60.2	49.9	59.2	58.8	56.8	61.0	59.0	58.0	45
MT 1231	59.6	59.5	50.6	58.1	58.5	57.7	59.0	60.0	57.9	49
MT 1234	60.9	59.6	48.5	60.8	60.8	58.5	61.0	59.5	58.7	31
MT 1236	59.2	59.1	48.4	56.1	59.0	57.2	58.5	58.0	56.9	56
MT 1264	59.0	60.4	49.3	57.9	59.3	58.7	60.0	56.5	57.6	51
MT 1273	60.7	58.1	47.0	58.4	61.6	59.0	62.0	57.5	58.0	42
MT 1276	59.8	60.9	50.3	58.5	60.7	58.7	59.5	58.5	58.4	34
Egan	60.3	59.1	50.3	58.2	60.4	56.9	60.5	58.0	58.0	46
MT 1304	61.5	62.1	51.0	60.4	61.6	60.1	61.0	59.5	59.7	9
MT 1315	60.8	62.3	50.8	60.8	<u>62.1</u>	60.4	62.0	59.5	<u>59.8</u>	7
MT 1316	60.4	60.6	48.6	58.6	61.1	59.1	61.5	59.2	58.6	32
MT 1319	60.6	61.8	50.5	60.9	<u>61.7</u>	60.5	62.0	59.5	59.7	8
MT 1320	60.7	61.4	<u>52.2</u>	60.5	61.4	59.8	62.0	59.0	59.6	11
MT 1331	56.8	57.4	43.3	57.9	56.0	55.8	60.0	56.0	55.4	63
MT 1333	61.0	60.8	<u>51.5</u>	<u>61.8</u>	<u>61.9</u>	60.2	<u>63.0</u>	59.0	<u>59.9</u>	6
MT 1336	59.2	60.5	49.9	59.9	59.7	58.8	60.0	58.0	58.3	38
MT 1337	55.4	60.7	49.1	59.8	60.9	58.0	60.5	59.5	58.0	44
MT 1338	61.5	<u>62.4</u>	<u>53.6</u>	<u>62.6</u>	<u>61.8</u>	<u>61.2</u>	62.0	60.0	<u>60.6</u>	2
MT 1340	58.6	59.7	48.1	58.0	59.4	60.0	60.5	59.0	57.9	48
MT 1341	60.1	61.4	50.5	59.7	60.6	60.0	61.0	60.0	59.2	16
MT 1343	59.7	57.8	45.6	57.9	60.4	56.3	59.5	58.0	56.9	58
MT 1346	59.8	61.9	<u>52.2</u>	61.0	60.5	59.2	62.0	58.5	59.4	14
MT 1348	60.5	61.8	<u>52.4</u>	60.8	61.2	60.1	62.5	60.0	<u>59.9</u>	5
MT 1349	58.6	59.2	47.7	57.4	58.4	57.2	59.5	57.5	56.9	57
MT 1360	58.5	60.8	48.1	58.2	58.2	58.4	59.5	58.5	57.5	52
site mean	59.8	60.1	49.8	59.0	60.3	58.7	60.7	58.9	58.4	
CV (S/mean)	1 rep	1 rep	3.2	1.3	1.7	1.1	1 rep	1 rep	1.7	
F-value	1 rep	1 rep	<0.001	<0.001	<0.001	<.0001	1 rep	1 rep	<0.001	
LSD (.05)	1 rep	1 rep	2.6	1.5	1.7	1.0	1 rep	1 rep	1.0	

1) Underlined: highest value;

2) Double underlined: equal value to highest value within a column based LSD (0.05)

Table 3. 2014 grain protein content (percent) summary for the advanced spring wheat nursery grown across Montana.

ID	Kalispell, rain-fed	Bozeman, rain-fed	Huntley, rain-fed	Moccasin, rain-fed	Conrad, rain-fed	Havre, rain-fed	Sidney, rain-fed	Sidney, irrigated	Average	rank
Thatcher	13.8	15.6	<u>19.0</u>	16.1	13.0	16.5	11.9	14.9	15.1	12
Fortuna	14.6	14.7	17.2	15.2	12.8	15.5	12.2	14.7	14.6	39
McNeal	13.3	15.0	18.2	16.6	12.8	15.8	11.3	14.3	14.7	38
Reeder	14.3	15.8	17.5	15.1	11.4	15.9	11.3	14.5	14.5	45
Choteau	13.5	15.4	17.9	15.5	12.3	16.3	12.3	14.5	14.7	35
Vida	14.2	14.8	17.6	15.3	10.7	15.1	10.7	14.4	14.1	55
Duclair	14.3	14.2	17.9	16.5	11.6	15.7	11.5	13.8	14.4	46
Corbin	13.3	15.5	18.2	16.6	12.1	16.4	11.6	14.2	14.7	34
Volt	13.5	14.4	18.2	15.3	11.6	14.9	11.0	13.1	14.0	59
ONeal	13.8	14.8	<u>18.9</u>	16.5	11.0	16.0	10.9	14.0	14.5	43
Jedd	13.2	14.7	<u>19.0</u>	15.5	12.3	15.0	11.0	13.9	14.3	50
WB Gunnison	13.3	14.5	16.9	15.3	11.9	15.1	11.5	13.8	14.0	58
Mott	13.2	15.0	<u>18.7</u>	17.1	12.3	<u>17.0</u>	12.2	14.7	15.0	17
WB9879CL	13.7	15.4	18.1	15.9	12.6	16.4	12.8	14.6	14.9	22
Brennan	14.7	15.5	17.9	16.5	13.1	16.1	12.1	14.9	15.1	13
SY Tyra	13.5	14.5	17.1	15.1	10.8	15.2	10.5	13.3	13.8	64
SY605 CL	14.8	16.2	<u>19.7</u>	16.5	<u>14.1</u>	16.8	11.8	15.6	15.7	2
SY Soren	14.6	16.1	18.2	15.9	12.4	16.1	11.7	14.5	14.9	23
SY Rowyn	13.7	14.6	16.6	16.5	12.1	15.7	11.6	13.8	14.3	51
SY Ingmar	15.3	15.5	<u>19.3</u>	16.2	11.9	15.7	12.1	14.7	15.1	14
Buck Pronto	14.5	15.8	<u>18.9</u>	17.2	13.2	16.6	12.7	15.1	15.5	4
LIMAGR141	13.3	15.7	16.3	15.4	11.7	15.0	10.4	13.1	13.9	62
LIMAGR142	12.7	14.1	16.7	16.5	11.4	15.2	11.2	13.7	13.9	61
LIMAGR143	13.7	14.6	16.2	15.7	11.6	16.0	11.5	14.6	14.2	54
WB141	13.4	15.1	17.4	16.8	12.4	16.2	12.7	14.1	14.8	33
WB142	14.7	15.0	<u>18.8</u>	15.4	12.8	16.1	11.8	15.0	15.0	20
WB143	15.3	15.5	<u>18.8</u>	16.7	12.7	<u>17.2</u>	12.6	15.7	15.6	3
WB144	13.4	14.7	18.0	16.2	11.7	15.7	11.9	14.3	14.5	44
MT 1007	14.4	14.9	17.9	14.7	11.2	16.0	11.3	14.7	14.4	47
MT 1118	14.3	14.9	17.2	<u>17.7</u>	12.8	15.9	11.6	14.5	14.9	26
MT 1203	14.7	15.9	18.3	15.6	13.2	16.6	12.5	15.4	15.3	8
MT 1205	13.7	15.8	<u>18.6</u>	15.8	12.0	16.8	12.1	15.0	15.0	19
MT 1206	14.0	15.5	<u>18.6</u>	15.9	11.7	16.7	11.8	14.0	14.8	32
MT 1219	13.7	14.1	<u>18.6</u>	15.0	11.8	15.8	11.0	14.0	14.3	53
MT 1222	15.6	15.5	18.3	16.8	12.1	16.6	11.8	14.7	15.2	10
MT 1224	13.4	15.2	18.1	16.2	11.9	15.7	11.2	14.3	14.5	41

(continued)

Table 3 (continued). 2014 protein content (percent) summary for the advanced spring wheat nursery grown across Montana.

ID	Kalispell, rain-fed	Bozeman, rain-fed	Huntley, rain-fed	Moccasin, rain-fed	Conrad, rain-fed	Havre, rain-fed	Sidney, rain-fed	Sidney, irrigated	Average	rank
MT 1225	14.0	14.8	<u>19.0</u>	16.0	12.2	16.3	12.0	14.6	14.9	27
MT 1227	14.6	15.5	<u>19.2</u>	15.2	11.6	16.7	11.7	14.4	14.9	28
MT 1228	13.9	15.2	18.2	14.8	11.6	16.1	11.7	13.4	14.4	48
MT 1230	14.6	14.9	17.9	15.0	12.3	16.3	12.0	14.5	14.7	37
MT 1231	14.6	15.1	18.4	15.7	12.8	16.3	12.4	15.3	15.1	16
MT 1234	14.3	16.0	<u>18.7</u>	15.5	12.5	<u>17.0</u>	<u>13.2</u>	15.3	15.3	7
MT 1236	14.9	16.1	<u>18.5</u>	17.3	12.7	<u>16.8</u>	12.6	14.6	15.4	5
MT 1264	14.3	15.3	17.5	16.7	12.2	16.5	11.7	14.3	14.8	31
MT 1273	12.9	14.9	18.4	15.8	10.6	15.0	10.2	13.8	14.0	60
MT 1276	13.7	14.9	17.5	15.3	11.7	15.5	11.6	14.2	14.3	52
Egan	15.4	<u>17.4</u>	<u>20.2</u>	17.1	13.5	<u>17.3</u>	12.7	<u>15.9</u>	<u>16.2</u>	<u>1</u>
MT 1304	13.9	14.5	17.1	14.2	11.3	15.3	10.7	13.8	13.9	63
MT 1315	15.5	15.4	17.3	15.6	12.2	16.3	11.6	15.0	14.9	29
MT 1316	15.0	14.8	17.2	14.9	12.0	16.2	11.0	15.1	14.5	40
MT 1319	14.6	14.7	17.4	14.0	11.9	15.3	10.9	13.9	14.1	56
MT 1320	14.1	14.7	16.8	15.8	12.7	15.1	11.6	13.9	14.3	49
MT 1331	13.9	14.7	<u>18.6</u>	14.4	11.4	15.0	10.7	13.8	14.1	57
MT 1333	14.4	15.8	17.8	15.6	13.4	16.0	11.7	14.9	15.0	21
MT 1336	14.2	14.8	<u>18.7</u>	14.9	12.3	15.9	11.9	15.0	14.7	36
MT 1337	15.4	15.4	<u>18.9</u>	14.7	13.1	16.2	12.3	15.2	15.2	11
MT 1338	14.4	14.7	17.5	15.0	13.1	15.5	11.5	14.3	14.5	42
MT 1340	14.5	15.6	<u>19.0</u>	15.8	12.6	16.2	12.1	14.9	15.1	15
MT 1341	14.3	15.1	<u>18.5</u>	15.6	12.5	16.2	12.0	15.0	14.9	24
MT 1343	14.8	16.0	<u>18.7</u>	16.3	12.6	15.7	11.3	14.7	15.0	18
MT 1346	14.5	14.9	17.7	15.5	13.1	16.3	12.4	14.8	14.9	25
MT 1348	14.1	15.4	18.3	15.7	12.6	16.0	11.8	14.9	14.9	30
MT 1349	15.0	15.3	<u>19.1</u>	16.1	12.8	16.5	12.4	14.7	15.2	9
MT 1360	<u>15.8</u>	16.3	17.7	15.9	12.8	16.5	12.2	15.6	15.4	6
site mean	14.2	15.2	18.1	15.8	12.2	16.0	11.7	14.5	14.7	
CV (S/mean)	1REP	1REP	5.9	1REP	1REP	1.8	1REP	1REP	3.5	
F-value	1REP	1REP	<0.01	1REP	1REP	<.0001	1REP	1REP	<0.001	
LSD (.05)	1REP	1REP	1.8	1REP	1REP	0.5	1REP	1REP	0.5	

1) Underlined: highest value;

2) Double underlined: equal value to highest value within a column based LSD (0.05)

Table 4. 2014 heading date (days from January 1) summary for the advanced spring wheat nursery grown across Montana. 178= June 27

ID	Kalispell, rain-fed	Bozeman, rain-fed	Huntley, rain-fed	Moccasin, rain-fed	Conrad, rain-fed	Havre, rain-fed	Sidney, rain-fed	Sidney, irrigated	Average	rank
Thatcher	184	186.3	177.0	181.0	185.0	178.7	180.7	185.3	182.3	64
Fortuna	180	180.7	174.7	179.0	183.3	175.0	177.0	178.0	178.5	52
McNeal	182	181.7	174.0	179.0	182.7	176.7	178.0	180.7	179.4	58
Reeder	179	180.3	172.0	179.0	182.3	174.7	177.0	179.0	177.9	45
Choteau	178	178.3	174.0	178.7	182.3	175.7	176.0	178.0	177.6	38
Vida	181	180.0	173.0	179.0	182.7	176.3	177.0	179.3	178.5	53
Duclair	177	177.7	<u>170.7</u>	177.7	<u>181.0</u>	173.7	175.0	177.0	176.2	16
Corbin	179	178.7	<u>174.0</u>	179.0	181.7	173.7	175.0	177.3	177.3	30
Volt	183	183.0	175.3	180.7	183.7	176.3	178.7	185.3	180.8	63
ONeal	182	181.7	173.0	179.0	183.7	176.7	177.3	181.7	179.4	59
Jedd	<u>176</u>	178.0	171.7	178.3	182.7	174.0	175.0	176.7	176.6	21
WB Gunnison	179	179.7	173.0	178.7	182.7	175.3	176.7	178.3	177.9	46
Mott	182	181.7	175.0	180.3	183.0	177.0	177.3	179.7	179.5	61
WB9879CL	180	180.7	174.0	179.7	183.0	175.0	177.0	179.3	178.6	54
Brennan	<u>176</u>	177.3	<u>170.0</u>	178.3	<u>180.7</u>	<u>173.0</u>	175.7	177.7	176.1	15
SY Tyra	179	178.3	174.0	178.3	181.7	175.0	176.0	178.3	177.6	37
SY605 CL	<u>175</u>	177.3	171.7	176.3	<u>180.0</u>	<u>173.0</u>	<u>174.0</u>	176.3	175.5	7
SY Soren	179	179.7	173.0	178.3	182.3	174.7	176.0	178.3	177.7	40
SY Rowyn	177	178.7	171.7	178.3	181.3	173.7	175.3	176.7	176.6	24
SY Ingmar	178	179.7	172.3	179.0	182.7	174.3	176.7	178.3	177.6	39
Buck Pronto	<u>176</u>	<u>176.0</u>	<u>169.3</u>	176.3	<u>180.7</u>	<u>173.0</u>	<u>173.7</u>	176.3	<u>175.2</u>	3
LIMAGR141	182	179.7	173.0	176.0	183.3	175.0	176.0	178.7	178.0	48
LIMAGR142	177	179.3	174.0	178.3	<u>181.0</u>	<u>173.0</u>	175.3	176.7	176.8	27
LIMAGR143	178	179.7	174.0	178.7	182.3	174.3	175.3	177.3	177.5	33
WB141	178	180.0	173.0	179.3	182.3	174.7	176.7	177.7	177.7	41
WB142	180	179.0	174.0	177.0	<u>181.0</u>	<u>173.0</u>	<u>174.0</u>	181.7	177.5	34
WB143	<u>176</u>	<u>175.7</u>	<u>170.0</u>	176.7	<u>181.0</u>	<u>173.3</u>	<u>173.0</u>	<u>175.7</u>	<u>175.2</u>	4
WB144	180	180.3	173.0	180.3	183.0	175.7	178.3	179.3	178.7	55
MT 1007	178	178.7	173.0	178.7	182.0	175.0	174.7	178.0	177.3	29
MT 1118	178	177.7	172.0	178.0	181.3	174.7	174.7	176.7	176.6	25
MT 1203	<u>176</u>	178.0	171.3	176.7	<u>180.3</u>	<u>172.7</u>	<u>173.0</u>	<u>175.3</u>	<u>175.4</u>	6
MT 1205	<u>176</u>	<u>177.0</u>	<u>170.7</u>	178.0	<u>181.0</u>	<u>172.3</u>	<u>174.0</u>	<u>175.3</u>	175.5	8
MT 1206	178	180.3	174.0	178.3	181.7	176.3	176.3	178.7	178.0	47
MT 1219	178	178.7	174.0	178.0	181.7	175.7	175.3	178.0	177.4	32
MT 1222	177	178.0	<u>171.0</u>	177.0	<u>181.0</u>	<u>172.3</u>	<u>174.0</u>	176.7	175.9	11
MT 1224	178	179.3	173.0	178.7	182.3	174.7	176.0	177.7	177.5	35

(continued)

Table 4 (continued). 2014 heading date (days from January 1) summary for the advanced spring wheat nursery grown across Montana. 178= June 27

ID	Kalispell, rain-fed	Bozeman, rain-fed	Huntley, rain-fed	Moccasin, rain-fed	Conrad, rain-fed	Havre, rain-fed	Sidney, rain-fed	Sidney, irrigated	Average	rank
MT 1225	179	179.7	174.0	178.3	182.0	175.3	175.7	178.0	177.8	42
MT 1227	182	181.7	175.0	180.3	183.7	177.7	179.0	181.3	180.1	62
MT 1228	180	181.0	174.0	178.7	183.0	175.7	177.0	181.0	178.8	56
MT 1230	180	180.0	174.0	179.3	183.0	177.7	177.0	179.7	178.8	57
MT 1231	177	179.0	172.0	179.7	182.7	175.0	175.3	177.3	177.3	28
MT 1234	179	180.3	174.0	179.3	183.0	175.3	177.0	178.3	178.3	50
MT 1236	178	180.0	173.0	179.0	181.7	174.3	176.3	178.0	177.5	36
MT 1264	177	178.3	174.0	177.3	181.7	<u>173.0</u>	174.7	177.7	176.7	26
MT 1273	180	179.7	173.0	179.3	183.0	175.7	176.7	179.0	178.3	51
MT 1276	178	<u>177.0</u>	<u>170.7</u>	177.3	181.3	175.0	174.3	176.7	176.3	18
Egan	181	182.0	174.0	180.0	183.7	176.3	178.0	180.7	179.5	60
MT 1304	<u>175</u>	<u>177.0</u>	<u>169.0</u>	<u>174.0</u>	<u>180.0</u>	173.7	<u>173.0</u>	<u>175.3</u>	<u>174.6</u>	1
MT 1315	<u>175</u>	<u>176.0</u>	<u>170.0</u>	176.0	<u>180.3</u>	<u>172.0</u>	<u>173.0</u>	177.7	<u>175.0</u>	2
MT 1316	<u>176</u>	178.0	<u>170.7</u>	176.7	<u>180.7</u>	<u>173.0</u>	175.0	182.3	176.6	22
MT 1319	177	177.7	<u>170.3</u>	176.7	<u>180.7</u>	<u>172.7</u>	174.3	179.0	176.1	13
MT 1320	177	178.3	171.3	178.0	181.3	<u>173.0</u>	176.0	177.7	176.6	23
MT 1331	178	180.0	174.0	178.3	181.7	175.3	176.0	179.7	177.9	43
MT 1333	178	180.3	171.7	179.0	182.7	174.7	177.3	180.0	178.0	49
MT 1336	177	177.7	<u>170.7</u>	176.7	<u>180.7</u>	<u>173.0</u>	174.3	177.0	175.9	12
MT 1337	<u>176</u>	178.3	<u>169.3</u>	177.0	181.3	<u>172.7</u>	174.3	176.3	175.7	10
MT 1338	<u>176</u>	178.0	<u>170.3</u>	177.7	181.7	175.0	175.3	<u>176.0</u>	176.3	17
MT 1340	177	<u>175.7</u>	<u>169.0</u>	177.7	<u>181.0</u>	<u>173.3</u>	<u>173.7</u>	<u>175.3</u>	<u>175.3</u>	5
MT 1341	<u>176</u>	<u>176.7</u>	<u>170.3</u>	177.7	<u>180.7</u>	174.3	<u>174.0</u>	<u>175.0</u>	175.6	9
MT 1343	179	179.7	173.0	178.7	182.3	175.3	177.0	178.0	177.9	44
MT 1346	177	178.0	172.0	178.0	<u>181.0</u>	173.7	175.3	<u>176.0</u>	176.4	19
MT 1348	<u>176</u>	177.7	<u>170.3</u>	178.3	181.3	<u>173.3</u>	174.7	177.0	176.1	14
MT 1349	178	179.0	173.0	178.0	181.3	175.3	176.0	178.3	177.4	31
MT 1360	178	178.3	172.0	177.0	<u>180.7</u>	<u>173.0</u>	174.7	177.7	176.4	20
site mean	178.3	179.1	172.5	178.2	181.9	174.6	175.7	178.2	177.3	
CV (S/mean)	0.7	0.5	0.7	0.6	0.4	0.5	0.4	0.4	0.5	
F-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
LSD (.05)	1.9	1.5	2.1	1.6	1.1	1.5	1.1	1.1	0.9	

1) Underlined: earliest value;

2) Double underlined: equal value to earliest value within a column based LSD (0.05)

Table 5. 2014 plant height (inches) summary for the advanced spring wheat nursery grown across Montana.

ID	Kalispell, rain-fed	Bozeman, rain-fed	Huntley, rain-fed	Moccasin, rain-fed	Conrad, rain-fed	Havre, rain-fed	Sidney, rain-fed	Sidney, irrigated	Average	rank
Thatcher	49.0	43.7	45.5	35.6	43.0	32.3	36.9	43.6	41.2	1
Fortuna	43.3	41.3	45.2	37.3	41.0	29.8	36.3	43.0	39.7	2
McNeal	35.7	33.6	35.3	30.4	33.0	28.3	30.2	37.4	33.0	12
Reeder	36.3	33.5	36.3	30.7	35.0	27.5	30.1	37.5	33.4	10
Choteau	35.3	31.4	34.5	28.7	29.7	25.9	28.1	34.3	31.0	46
Vida	35.7	33.8	35.6	28.2	34.0	26.1	30.3	35.3	32.4	20
Duclair	35.3	34.4	35.5	31.0	32.0	26.4	30.7	36.1	32.7	16
Corbin	35.7	34.1	35.8	31.6	32.3	24.7	28.7	34.0	32.1	25
Volt	32.3	31.7	33.5	30.6	30.0	24.5	28.1	33.9	30.6	51
ONeal	35.3	32.6	33.8	30.2	33.3	25.9	28.2	35.3	31.8	32
Jedd	27.7	28.5	30.8	27.7	27.0	24.3	26.9	30.6	27.9	62
WB Gunnison	34.3	30.8	32.4	27.3	33.3	24.6	27.7	34.4	30.6	50
Mott	40.3	36.7	39.1	32.1	37.3	25.1	31.5	38.3	35.1	5
WB9879CL	34.3	32.3	35.0	29.3	32.0	24.4	29.0	34.4	31.3	41
Brennan	30.7	32.0	32.8	31.1	28.7	26.6	29.4	32.2	30.4	56
SY Tyra	31.3	30.0	29.9	25.9	28.7	25.8	26.8	30.4	28.6	60
SY605 CL	38.0	37.5	40.1	34.6	34.7	26.5	35.4	37.8	35.6	4
SY Soren	33.0	31.0	32.7	30.1	29.3	23.8	26.7	32.4	29.9	58
SY Rowyn	32.7	32.5	33.8	28.5	30.7	24.3	29.5	34.0	30.8	49
SY Ingmar	33.0	32.5	32.8	29.6	30.7	25.9	29.4	33.8	31.0	47
Buck Pronto	37.0	32.4	34.0	31.5	29.3	26.1	29.5	34.4	31.8	34
LIMAGR141	33.7	30.2	30.9	30.4	29.3	25.1	25.7	31.9	29.7	59
LIMAGR142	35.3	34.1	36.4	32.0	32.3	26.6	31.2	36.0	33.0	13
LIMAGR143	41.3	37.0	39.8	32.5	36.3	27.9	31.6	39.4	35.7	3
WB141	37.0	35.9	37.7	32.7	34.3	25.6	31.4	35.7	33.8	8
WB142	30.3	30.0	31.1	28.1	27.7	23.2	26.9	31.4	28.6	61
WB143	28.7	29.2	28.8	27.3	27.0	23.5	25.2	30.2	27.5	64
WB144	31.0	28.2	28.8	26.4	27.3	22.5	26.8	29.9	27.6	63
MT 1007	34.0	31.9	33.2	27.0	30.3	25.2	28.3	34.1	30.5	54
MT 1118	32.3	34.0	32.7	28.8	29.7	25.4	28.1	33.2	30.5	53
MT 1203	35.3	33.1	34.4	29.7	30.3	25.1	28.6	35.4	31.5	39
MT 1205	34.7	33.0	35.3	31.1	31.3	24.7	29.5	34.1	31.7	36
MT 1206	34.3	31.7	34.1	28.0	30.7	24.1	29.6	35.5	31.0	45
MT 1219	34.3	31.4	31.6	29.3	29.7	25.6	28.3	33.5	30.5	55
MT 1222	35.0	33.5	35.4	30.3	31.3	26.2	28.5	35.0	31.9	29
MT 1224	35.0	33.8	35.0	30.4	32.0	24.7	29.5	36.1	32.1	26

(continued)

Table 5 (continued). 2014 plant height (inches) summary for the advanced spring wheat nursery grown across Montana.

ID	Kalispell, rain-fed	Bozeman, rain-fed	Huntley, rain-fed	Moccasin, rain-fed	Conrad, rain-fed	Havre, rain-fed	Sidney, rain-fed	Sidney, irrigated	Average	rank
MT 1225	33.7	34.1	34.6	29.4	32.0	23.4	28.5	34.8	31.3	43
MT 1227	35.7	32.5	33.7	28.9	31.7	25.2	28.3	36.2	31.5	38
MT 1228	35.3	33.1	33.2	29.5	31.7	26.0	28.2	36.3	31.7	37
MT 1230	35.3	33.2	35.1	30.8	31.3	25.3	29.5	35.5	32.0	27
MT 1231	34.7	33.9	35.6	28.7	31.0	25.9	29.0	36.6	31.9	28
MT 1234	37.7	35.0	36.6	29.1	32.7	25.0	29.6	35.6	32.7	17
MT 1236	34.3	31.8	33.7	27.4	30.7	24.6	28.3	33.6	30.6	52
MT 1264	33.7	34.5	37.1	28.3	32.3	26.1	29.0	36.5	32.2	23
MT 1273	36.0	32.6	34.2	28.9	32.7	25.1	29.4	35.8	31.8	31
MT 1276	36.3	33.8	34.2	30.4	32.3	25.1	28.7	34.1	31.9	30
Egan	36.3	32.7	34.7	30.0	32.7	27.1	29.4	34.5	32.2	24
MT 1304	34.0	34.1	34.9	31.0	30.7	23.5	31.1	35.1	31.8	33
MT 1315	36.3	33.4	34.7	31.4	32.3	26.5	28.4	35.2	32.3	22
MT 1316	34.7	32.9	35.2	30.6	31.0	25.2	28.2	36.3	31.8	35
MT 1319	37.3	35.2	36.8	33.7	33.7	26.1	29.2	38.7	33.8	7
MT 1320	39.0	36.3	39.1	31.5	35.3	26.6	33.0	38.1	34.9	6
MT 1331	32.0	34.2	33.7	31.0	31.7	24.3	28.1	36.1	31.4	40
MT 1333	34.7	34.8	35.7	31.9	32.7	23.6	30.2	36.6	32.5	19
MT 1336	32.0	32.3	34.1	30.3	31.7	25.2	29.6	33.7	31.1	44
MT 1337	33.0	34.0	36.1	32.4	33.7	27.0	31.4	35.3	32.9	14
MT 1338	36.0	34.4	36.3	32.0	32.3	27.7	29.4	35.9	33.0	11
MT 1340	29.0	31.4	33.8	30.1	28.7	24.3	29.1	33.5	30.0	57
MT 1341	33.3	32.4	33.3	30.2	30.7	24.5	28.6	33.2	30.8	48
MT 1343	37.0	34.8	37.4	31.1	33.0	28.6	30.8	36.1	33.6	9
MT 1346	36.7	33.7	36.2	30.4	31.3	26.3	30.4	35.8	32.6	18
MT 1348	34.0	33.9	35.7	32.2	32.7	26.2	29.5	34.3	32.3	21
MT 1349	33.0	33.2	33.8	31.0	29.7	25.3	30.3	34.3	31.3	42
MT 1360	36.3	34.4	36.3	32.4	32.3	25.6	28.5	36.1	32.7	15
site mean	34.9	33.4	34.9	30.3	31.9	25.6	29.4	35.1	31.9	
CV (S/mean)	4.7	3.0	2.4	4.8	4.0	6.2	4.7	3.1	3.7	
F-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
LSD (.05)	2.6	1.6	1.5	2.3	2.0	2.6	2.3	1.7	1.1	

1) Underlined: highest value;

2) Double underlined: equal value to highest value within a column based LSD (0.05)

Table 6. 2014 over-all summary for the advanced spring wheat nursery grown across Montana.

Line or variety	Grain yield (bu/ac)		Test weight (lb/bu)		Heading date (178= June 27)		Plant height (in)		Grain protein (%)	
	average	rank	average	rank	average	rank	average	rank	average	rank
Thatcher	49.8	64	56.8	59	182.3	64	41.2	1	15.1	12
Fortuna	61.6	62	59.4	13	178.5	52	39.7	2	14.6	39
McNeal	<u>68.8</u>	22	57.9	47	179.4	58	33.0	12	14.7	38
Reeder	<u>71.2</u>	9	59.1	17	177.9	45	33.4	10	14.5	45
Choteau	64.1	58	58.3	37	177.6	38	31.0	46	14.7	35
Vida	<u>71.6</u>	8	58.0	43	178.5	53	32.4	20	14.1	55
Duclair	<u>69.7</u>	15	58.1	40	176.2	16	32.7	16	14.4	46
Corbin	66.1	47	58.8	25	177.3	30	32.1	25	14.7	34
Volt	<u>72.2</u>	4	<u>60.7</u>	1	180.8	63	30.6	51	14.0	59
ONeal	67.5	32	58.8	28	179.4	59	31.8	32	14.5	43
Jedd	59.4	63	59.0	19	176.6	21	27.9	62	14.3	50
WB Gunnison	66.4	41	58.9	21	177.9	46	30.6	50	14.0	58
Mott	65.5	52	58.8	29	179.5	61	35.1	5	15.0	17
WB9879CL	66.4	43	58.9	22	178.6	54	31.3	41	14.9	22
Brennan	65.5	53	<u>60.1</u>	3	176.1	15	30.4	56	15.1	13
SY Tyra	66.9	37	59.0	20	177.6	37	28.6	60	13.8	64
SY605 CL	66.2	46	<u>59.9</u>	4	175.5	7	35.6	4	15.7	2
SY Soren	<u>69.2</u>	17	58.8	23	177.7	40	29.9	58	14.9	23
SY Rowyn	<u>71.1</u>	10	58.7	30	176.6	24	30.8	49	14.3	51
SY Ingmar	65.8	49	58.8	26	177.6	39	31.0	47	15.1	14
Buck Pronto	66.4	42	58.2	39	<u>175.2</u>	3	31.8	34	15.5	4
LIMAGR141	<u>71.8</u>	6	56.7	60	178.0	48	29.7	59	13.9	62
LIMAGR142	<u>70.5</u>	12	59.1	18	176.8	27	33.0	13	13.9	61
LIMAGR143	<u>71.8</u>	7	58.6	33	177.5	33	35.7	3	14.2	54
WB141	64.8	57	55.9	62	177.7	41	33.8	8	14.8	33
WB142	66.7	39	57.8	50	177.5	34	28.6	61	15.0	20
WB143	<u>69.1</u>	19	58.8	24	<u>175.2</u>	4	27.5	64	15.6	3
WB144	64.0	59	59.6	12	178.7	55	27.6	63	14.5	44
MT 1007	65.2	54	59.6	10	177.3	29	30.5	54	14.4	47
MT 1118	<u>68.6</u>	23	56.5	61	176.6	25	30.5	53	14.9	26
MT 1203	<u>66.8</u>	38	58.3	35	<u>175.4</u>	6	31.5	39	15.3	8
MT 1205	65.7	50	59.2	15	175.5	8	31.7	36	15.0	19
MT 1206	66.6	40	58.8	27	178.0	47	31.0	45	14.8	32
MT 1219	<u>70.0</u>	14	58.3	36	177.4	32	30.5	55	14.3	53
MT 1222	66.1	48	58.1	41	175.9	11	31.9	29	15.2	10
MT 1224	68.4	25	57.3	54	177.5	35	32.1	26	14.5	41

(continued)

Table 6. (continued). 2014 over-all summary for the advanced spring wheat nursery grown across Montana.

Line or variety	Grain yield (bu/ac)		Test weight (lb/bu)		Heading date (178= June 27)		Plant height (in)		Grain protein (%)	
	average	rank	average	rank	average	rank	average	rank	average	rank
MT 1225	<u>69.2</u>	18	57.5	53	177.8	42	31.3	43	14.9	27
MT 1227	66.3	44	55.3	64	180.1	62	31.5	38	14.9	28
MT 1228	63.3	60	57.1	55	178.8	56	31.7	37	14.4	48
MT 1230	<u>68.8</u>	21	58.0	45	178.8	57	32.0	27	14.7	37
MT 1231	<u>67.2</u>	33	57.9	49	177.3	28	31.9	28	15.1	16
MT 1234	65.7	51	58.7	31	178.3	50	32.7	17	15.3	7
MT 1236	65.1	55	56.9	56	177.5	36	30.6	52	15.4	5
MT 1264	67.6	31	57.6	51	176.7	26	32.2	23	14.8	31
MT 1273	68.2	27	58.0	42	178.3	51	31.8	31	14.0	60
MT 1276	68.3	26	58.4	34	176.3	18	31.9	30	14.3	52
Egan	62.7	61	58.0	46	179.5	60	32.2	24	<u>16.2</u>	<u>1</u>
MT 1304	<u>71.1</u>	11	59.7	9	<u>174.6</u>	1	31.8	33	13.9	63
MT 1315	66.2	45	<u>59.8</u>	7	<u>175.0</u>	2	32.3	22	14.9	29
MT 1316	<u>74.3</u>	<u>1</u>	58.6	32	176.6	22	31.8	35	14.5	40
MT 1319	<u>74.0</u>	2	59.7	8	176.1	13	33.8	7	14.1	56
MT 1320	<u>72.2</u>	5	59.6	11	176.6	23	34.9	6	14.3	49
MT 1331	<u>68.8</u>	20	55.4	63	177.9	43	31.4	40	14.1	57
MT 1333	<u>66.9</u>	36	<u>59.9</u>	6	178.0	49	32.5	19	15.0	21
MT 1336	67.9	30	58.3	38	175.9	12	31.1	44	14.7	36
MT 1337	<u>69.3</u>	16	58.0	44	175.7	10	32.9	14	15.2	11
MT 1338	<u>72.6</u>	3	<u>60.6</u>	2	176.3	17	33.0	11	14.5	42
MT 1340	67.1	34	57.9	48	<u>175.3</u>	5	30.0	57	15.1	15
MT 1341	67.9	29	59.2	16	175.6	9	30.8	48	14.9	24
MT 1343	67.0	35	56.9	58	177.9	44	33.6	9	15.0	18
MT 1346	68.2	28	59.4	14	176.4	19	32.6	18	14.9	25
MT 1348	<u>70.4</u>	13	<u>59.9</u>	5	176.1	14	32.3	21	14.9	30
MT 1349	68.5	24	56.9	57	177.4	31	31.3	42	15.2	9
MT 1360	64.9	56	57.5	52	176.4	20	32.7	15	15.4	6
mean	67.4		58.4		177.3		31.9		14.7	
CV (S/mean)	8.7		1.7		0.5		3.7		3.5	
Probability	<0.001		<0.001		<0.001		<0.001		<0.001	
LSD (.05)	5.8		1.0		0.9		1.1		0.5	

1) Underlined: highest or earliest value;

2) Double underlined: equal value to highest or earliest value within a column based LSD (0.05)