

**PROJECT TITLE:** Statewide Spring Wheat Variety Performance - 2011

**PRINCIPAL INVESTIGATION:**

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

**RESULTS:** The 2011 Advanced Spring Wheat yield trial was grown at two irrigated and seven rain-fed sites across Montana. Irrigated sites were at Sidney and Bozeman. 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. The nursery at NWARC-Kalispell was severely infested with stripe rust and orange wheat blossom midge. Data from that site are shown but not included in the averages. 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 Volt at **Havre**, Reeder at **Sidney dryland**, MT1053 at **Moccasin**, MT1072 at **Huntley**, MTHW1069 at **Conrad**, MT01053 at **Bozeman dryland**, MTHW1057 at **Bozeman irrigated**, McNeal at **Sidney irrigated**, and MT1073at **Kalispell**. Highest yielding line on a statewide basis was MT1053 (Table 1).

The entry with the highest test weight on a statewide basis was AgriPro11 (Table 2). The entry with the highest protein on a statewide basis was WestBred Rockland (Table 3). Earliest heading entry on a statewide basis was MTHW1060, while latest was Vantage (Table 4). Shortest entry was WestBred Rockland while tallest was Thatcher (Table 5). An overall summary for the advanced spring wheat nursery grown across Montana is shown in Table 6.

**SUMMARY:** Highest yielding varieties at individual sites were Volt at Havre, Reeder at Sidney dryland, MT1053 at Moccasin, MT1072 at Huntley, MTHW1069 at Conrad, MT01053 at Bozeman dryland, MTHW1057 at Bozeman irrigated, McNeal at Sidney irrigated, and MT1073at Kalispell. Highest yielding line on a statewide basis was MT1053.

**FUNDING SUMMARY:** Expenditure information to be provided by OSP. No other grants support this project.

**FUTURE PLANS:** These trials will continue in 2012. 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.

Table 1. 2011 yield (bu/ac) summary for the advanced spring wheat nursery grown across Montana.

| Line or variety | Havre,<br>dryland | Sidney,<br>dryland | Moccasin,<br>dryland | Huntley,<br>dryland | Conrad,<br>dryland | Bozeman,<br>dryland | Bozeman,<br>irrigated | Sidney,<br>irrigated | average | rank | BYX  | RSQ  | Kalispell,<br>rain-fed <sup>1</sup> |
|-----------------|-------------------|--------------------|----------------------|---------------------|--------------------|---------------------|-----------------------|----------------------|---------|------|------|------|-------------------------------------|
| VOLT            | 49.9              | 37.2               | 24.2                 | 54.9                | 72.5               | 53.5                | 73.8                  | 37.2                 | 50.4*   | 12   | 1.08 | 0.95 | 45.1                                |
| BRENNAN         | 36.9              | 46.1*              | 21.3                 | 56.0                | 72.2               | 45.1                | 62.8                  | 40.4                 | 47.6    | 42   | 0.96 | 0.89 | 38.2                                |
| AGRIPR11        | 40.0              | 43.9               | 25.3*                | 41.1                | 64.9               | 54.2                | 76.8                  | 40.1                 | 48.3    | 34   | 0.99 | 0.91 | 18.8                                |
| SY TYRA         | 40.7              | 46.0*              | 24.6                 | 43.9                | 68.1               | 58.2*               | 80.7*                 | 44.0                 | 50.8*   | 10   | 1.07 | 0.92 | 29.8                                |
| SY605 CL        | 37.6              | 43.4               | 21.7                 | 57.3*               | 70.0               | 49.1                | 68.5                  | 44.7                 | 49.0    | 27   | 1.00 | 0.95 | 33.7                                |
| SY SOREN        | 42.4              | 47.1*              | 24.0                 | 49.1                | 75.2               | 55.3*               | 71.3                  | 42.7                 | 50.9*   | 8    | 1.03 | 0.96 | 32.9                                |
| KELBY           | 41.2              | 48.2*              | 19.9                 | 47.3                | 67.1               | 42.5                | 54.4                  | 36.0                 | 44.6    | 59   | 0.79 | 0.81 | 34.1                                |
| KUNTZ           | 41.8              | 45.5*              | 24.1                 | 49.8                | 69.2               | 49.2                | 77.7                  | 46.1                 | 50.4*   | 13   | 1.03 | 0.96 | 26.2                                |
| AP604 CL        | 40.3              | 44.0               | 24.3                 | 57.5*               | 63.3               | 49.0                | 64.4                  | 43.0                 | 48.2    | 35   | 0.82 | 0.92 | 29.9                                |
| WB GUNNISON     | 45.3              | 32.6               | 26.2*                | 49.1                | 65.2               | 49.1                | 71.3                  | 35.3                 | 46.8    | 54   | 0.97 | 0.94 | 22.9                                |
| HANK            | 41.5              | 45.0*              | 26.1*                | 51.4                | 58.8               | 50.0                | 70.0                  | 38.6                 | 47.7    | 41   | 0.82 | 0.94 | 20.1                                |
| CONAN           | 42.7              | 36.9               | 22.8                 | 45.9                | 62.1               | 37.5                | 60.1                  | 37.8                 | 43.2    | 61   | 0.79 | 0.92 | 12.4                                |
| CORBIN          | 45.0              | 40.2               | 26.4*                | 50.0                | 68.9               | 50.4                | 70.3                  | 33.9                 | 48.1    | 36   | 0.97 | 0.97 | 18.3                                |
| ONEAL           | 46.9*             | 47.8*              | 25.5*                | 41.4                | 64.9               | 52.1                | 70.9                  | 39.6                 | 48.6    | 31   | 0.87 | 0.90 | 18.1                                |
| JEDD            | 40.7              | 39.8               | 24.8                 | 47.1                | 56.8               | 52.4                | 75.3                  | 34.6                 | 46.4    | 56   | 0.93 | 0.90 | 6.9                                 |
| CHOTWHT1        | 39.4              | 42.5               | 24.9                 | 51.9                | 72.9               | 50.6                | 72.9                  | 39.2                 | 49.3    | 23   | 1.06 | 0.99 | 37.1                                |
| THATCHER        | 36.6              | 31.1               | 20.6                 | 37.3                | 46.4               | 39.5                | 57.9                  | 36.0                 | 38.1    | 64   | 0.66 | 0.90 | 5.9                                 |
| FORTUNA         | 39.8              | 32.9               | 22.7                 | 46.8                | 62.6               | 43.0                | 57.8                  | 28.3                 | 41.7    | 62   | 0.85 | 0.92 | 24.3                                |
| HANKWHT1        | 40.0              | 42.7               | 25.1*                | 51.7                | 59.3               | 49.4                | 75.1                  | 35.5                 | 47.3    | 48   | 0.95 | 0.94 | 27.1                                |
| IMICHT79        | 39.9              | 37.6               | 25.3*                | 51.8                | 62.5               | 48.7                | 69.3                  | 38.6                 | 46.7    | 55   | 0.91 | 0.98 | 18.9                                |
| BUCKPRONTO      | 47.5*             | 37.9               | 22.1                 | 58.7*               | 76.3               | 48.0                | 65.6                  | 39.1                 | 49.4    | 21   | 1.03 | 0.89 | 52.2                                |
| LIMAGR2         | 38.8              | 37.8               | 24.7                 | 52.7                | 71.9               | 55.0                | 70.4                  | 45.4                 | 49.6    | 19   | 1.02 | 0.96 | 45.9                                |
| MT 0802         | 37.4              | 40.8               | 27.6*                | 43.7                | 66.2               | 52.2                | 75.8                  | 44.8                 | 48.6    | 32   | 0.97 | 0.93 | 35.3                                |
| MT 0852         | 37.7              | 39.3               | 23.3                 | 50.6                | 58.8               | 42.6                | 69.1                  | 45.2                 | 45.8    | 57   | 0.85 | 0.91 | 10.7                                |
| MT 0928         | 47.1*             | 40.0               | 27.4*                | 49.8                | 70.5               | 54.7                | 74.2                  | 35.4                 | 49.9    | 18   | 1.02 | 0.96 | 30.2                                |
| MT 0967         | 38.8              | 39.9               | 25.8*                | 54.2*               | 62.7               | 51.7                | 76.1                  | 39.4                 | 48.6    | 33   | 0.99 | 0.95 | 35.7                                |
| MT 0972         | 41.7              | 43.2               | 25.1*                | 52.3                | 76.3               | 50.4                | 65.3                  | 42.9                 | 49.6    | 20   | 0.97 | 0.94 | 14.7                                |
| MT 1002         | 36.2              | 42.2               | 26.3*                | 47.1                | 69.3               | 54.2                | 78.5                  | 39.0                 | 49.1    | 25   | 1.09 | 0.96 | 13.4                                |
| MT 1003         | 43.4              | 35.6               | 24.7                 | 53.0                | 69.5               | 45.3                | 70.0                  | 38.5                 | 47.5    | 45   | 1.00 | 0.96 | 23.1                                |
| MT 1004         | 40.5              | 38.2               | 22.3                 | 54.7*               | 65.4               | 48.8                | 72.8                  | 36.6                 | 47.4    | 46   | 1.04 | 0.98 | 18.4                                |
| MT 1005         | 42.6              | 44.2               | 23.5                 | 56.1*               | 66.4               | 51.7                | 71.7                  | 39.2                 | 49.4    | 22   | 0.98 | 0.98 | 18.8                                |
| MT 1007         | 43.3              | 43.0               | 25.0*                | 56.8*               | 76.0               | 53.6                | 69.6                  | 40.3                 | 50.9*   | 9    | 1.04 | 0.97 | 20.3                                |
| MT 1008         | 40.2              | 46.9*              | 26.3*                | 52.4                | 74.5               | 59.6*               | 80.9*                 | 41.9                 | 52.8*   | 3    | 1.15 | 0.98 | 15.2                                |
| MT 1010         | 39.2              | 43.2               | 26.7*                | 51.7                | 63.7               | 51.6                | 73.9                  | 40.9                 | 48.8    | 28   | 0.94 | 0.98 | 11.4                                |
| MT 1011         | 38.0              | 41.5               | 21.8                 | 53.8*               | 60.2               | 48.4                | 68.8                  | 31.5                 | 45.5    | 58   | 0.95 | 0.93 | 18.0                                |
| MT 1013         | 36.1              | 39.9               | 24.3                 | 50.2                | 63.9               | 53.6                | 78.3                  | 37.5                 | 48.0    | 38   | 1.08 | 0.96 | 28.5                                |
| MT 1015         | 43.0              | 33.6               | 24.8                 | 46.0                | 68.2               | 51.3                | 74.6                  | 35.7                 | 47.2    | 50   | 1.07 | 0.96 | 27.3                                |
| MT 1016         | 44.5              | 41.6               | 25.1*                | 56.9*               | 75.1               | 49.7                | 78.8                  | 43.2                 | 51.9*   | 5    | 1.13 | 0.98 | 15.3                                |
| MT 1020         | 41.6              | 43.6               | 25.0*                | 50.6                | 69.4               | 52.7                | 72.8                  | 37.1                 | 49.1    | 26   | 1.02 | 0.99 | 29.7                                |
| MT 1027         | 35.0              | 37.2               | 24.2                 | 48.4                | 71.9               | 50.5                | 72.7                  | 43.6                 | 47.9    | 40   | 1.08 | 0.97 | 18.3                                |

(continued)

Table 1 (continued). 2011 yield (bu/ac) summary for the advanced spring wheat nursery grown across Montana.

| Line or variety | Havre, dryland | Sidney, dryland | Moccasin, dryland | Huntley, dryland | Conrad, dryland | Bozeman, dryland | Bozeman, irrigated | Sidney, irrigated | average     | rank | BYX  | RSQ  | Kalispell, rain-fed <sup>1</sup> |
|-----------------|----------------|-----------------|-------------------|------------------|-----------------|------------------|--------------------|-------------------|-------------|------|------|------|----------------------------------|
| MT 1028         | 35.8           | 38.8            | 23.1              | 49.0             | 71.1            | 49.9             | 73.6               | 38.0              | 47.4        | 47   | 1.11 | 0.99 | 19.9                             |
| MT 1030         | 35.5           | 41.3            | 23.6              | 47.7             | 68.5            | 49.1             | 77.5               | 41.1              | 48.0        | 39   | 1.10 | 0.97 | 18.8                             |
| MT 1035         | 37.4           | 37.7            | 23.1              | 47.0             | 71.0            | 48.1             | 71.8               | 41.8              | 47.2        | 51   | 1.06 | 0.98 | 14.3                             |
| MT 1036         | 31.9           | 40.0            | 23.8              | 47.8             | 69.9            | 51.5             | 76.3               | 39.6              | 47.6        | 43   | 1.13 | 0.97 | 20.4                             |
| MT 1038         | 35.7           | 38.2            | 25.4*             | 51.5             | 66.9            | 50.2             | 76.8               | 40.1              | 48.1        | 37   | 1.07 | 0.97 | 17.6                             |
| MT 1049         | 40.9           | 36.6            | 24.2              | 51.1             | 71.7            | 53.7             | 75.0               | 36.9              | 48.8        | 29   | 1.12 | 0.98 | 35.8                             |
| MT 1053         | 43.3           | 45.8*           | <u>28.4</u>       | 53.0             | 78.6*           | <u>60.2</u>      | 82.5*              | 44.6              | <u>54.5</u> | 1    | 1.17 | 0.99 | 17.0                             |
| MT 1072         | 42.6           | 44.0            | 26.6*             | <u>58.9</u>      | 66.6            | 51.0             | 72.8               | 40.8              | 50.4*       | 14   | 0.95 | 0.97 | 50.2                             |
| MT 1073         | 46.1*          | 44.2            | 25.0*             | 55.5             | 78.1*           | 50.9             | 71.0               | 44.4              | 51.9*       | 6    | 1.04 | 0.96 | 60.6                             |
| MTHW1057        | 46.4*          | 41.6            | 24.0              | 48.5             | 78.1*           | 56.9*            | <u>85.7</u>        | 36.4              | 52.2*       | 4    | 1.30 | 0.97 | 14.6                             |
| MTHW1060        | 39.6           | 42.0            | 24.4              | 48.7             | 68.8            | 54.5             | 74.9               | 37.9              | 48.8        | 30   | 1.06 | 0.99 | 28.3                             |
| MTHW1064        | 43.2           | 37.7            | 25.7*             | 52.8             | 74.2            | 52.6             | 73.8               | 34.2              | 49.3        | 24   | 1.11 | 0.97 | 47.2                             |
| MTHW1065        | 40.9           | 33.8            | 22.8              | 45.9             | 70.3            | 45.6             | 63.1               | 30.1              | 44.1        | 60   | 1.00 | 0.94 | 47.8                             |
| MTHW1069        | 42.2           | 39.7            | 23.0              | 48.7             | <u>88.3</u>     | 57.8*            | 81.5*              | 33.8              | 51.9*       | 7    | 1.42 | 0.95 | 38.2                             |
| REEDER          | 42.0           | <u>49.0</u>     | 25.4*             | 52.5             | 69.4            | 50.3             | 68.7               | 43.4              | 50.1        | 16   | 0.90 | 0.96 | 45.0                             |
| MOTT            | 41.1           | 43.6            | 23.7              | 46.4             | 58.3            | 50.4             | 66.3               | 49.0*             | 47.3        | 49   | 0.75 | 0.88 | 15.5                             |
| MCNEAL          | 37.1           | 39.2            | 24.4              | 39.9             | 66.8            | 51.7             | 71.2               | <u>50.8</u>       | 47.6        | 44   | 0.93 | 0.86 | 22.7                             |
| CHOTEAU         | 38.7           | 42.8            | 24.2              | 54.0*            | 80.6*           | 50.1             | 72.5               | 38.0              | 50.1        | 17   | 1.17 | 0.96 | 23.8                             |
| VIDA            | 43.8           | 46.2*           | 25.6*             | 54.7*            | 66.4            | 55.5*            | 66.9               | 44.9              | 50.5*       | 11   | 0.84 | 0.95 | 19.9                             |
| DUCLAIR         | 42.8           | 34.0            | 27.7*             | 56.7*            | 78.2*           | 52.3             | 72.9               | 38.5              | 50.4*       | 15   | 1.12 | 0.94 | 31.3                             |
| VIDAWHT1        | 46.4           | 46.4            | 27.5*             | 54.9*            | 79.7*           | 57.1*            | 77.9               | 45.8              | 54.5*       | 2    | 1.11 | 1.00 | 23.8                             |
| BREAKER         | 43.3           | 36.6            | 24.7              | 50.0             | 66.0            | 48.5             | 64.6               | 41.5              | 46.9        | 52   | 0.87 | 0.97 | 22.5                             |
| VANTAGE         | 38.5           | 42.4            | 22.7              | 45.2             | 62.1            | 48.7             | 67.5               | 48.0*             | 46.9        | 53   | 0.84 | 0.91 | 20.4                             |
| WB ROCKLAND     | 34.0           | 36.5            | 18.6              | 50.2             | 68.0            | 39.5             | 52.9               | 31.0              | 41.4        | 63   | 0.90 | 0.86 | 38.4                             |
| site mean       | 40.8           | 40.9            | 24.4              | 50.5             | 68.7            | 50.6             | 71.5               | 39.7              | 48.4        |      | 1.00 | 1.00 | 26.2                             |
| CV (S/mean)     | 6.57           | 6.69            | 8.08              | 6.62             | 9.71            | 6.05             | 5.14               | 7.53              | 8.6         |      |      |      | 18.5                             |
| F-value         | 4.59**         | 6.15**          | 2.44**            | 5.21**           | 2.78**          | 5.76**           | 8.40**             | 6.69**            | 3.67**      |      |      |      | 18.13**                          |
| LSD (.05)       | 4.53           | 4.63            | 3.36              | 5.57             | 11.34           | 5.13             | 6.24               | 4.91              | 4.1         |      |      |      | 7.5                              |

Means followed by an asterisk are not significantly different at the .05 level when compared to the highest yielding wheat which is underlined

<sup>1</sup> The nursery at NWARC-Kalispell was severely infested with stripe rust and orange wheat blossom midge, data is shown but not included in average

Table 2. 2011 test weight (lb/bu) summary for the advanced spring wheat nursery grown across Montana.

| Line or variety | Havre,<br>dryland | Sidney,<br>dryland | Moccasin,<br>dryland | Huntley,<br>dryland | Conrad,<br>dryland | Bozeman,<br>dryland | Bozeman,<br>irrigated | Sidney,<br>irrigated | average     | rank | BYX  | RSQ  | Kalispell,<br>rain-fed <sup>1</sup> |
|-----------------|-------------------|--------------------|----------------------|---------------------|--------------------|---------------------|-----------------------|----------------------|-------------|------|------|------|-------------------------------------|
| VOLT            | 60.3              | 58.5               | 61.4                 | 56.5                | 60.6               | 60.8                | 61.8                  | 56.0                 | 59.5        | 46   | 1.52 | 0.95 | 54.2                                |
| BRENNAN         | 62.9*             | 61.5               | 62.4                 | 61.1*               | <u>62.5</u>        | 61.2                | 63.2                  | 60.5                 | 61.9*       | 2    | 0.53 | 0.62 | 58.4                                |
| AGRIPR11        | 63.0*             | <u>62.0</u>        | 63.0                 | <u>62.5</u>         | 61.5*              | 62.4                | 63.3                  | 60.5                 | <u>62.3</u> | 1    | 0.46 | 0.50 | 49.2                                |
| SY TYRA         | 61.1              | 59.5               | 60.1                 | 57.6                | 61.6*              | 61.2                | 61.9                  | 58.0                 | <u>60.1</u> | 26   | 1.01 | 0.77 | 50.1                                |
| SY605 CL        | 59.2              | 56.5               | 59.7                 | 57.1                | 59.9               | 59.9                | 60.3                  | 56.0                 | 58.6        | 58   | 1.10 | 0.81 | 57.0                                |
| SY SOREN        | 60.8              | 58.0               | 60.9                 | 56.7                | 59.8               | 60.3                | 61.3                  | 57.5                 | 59.4        | 49   | 1.19 | 0.95 | 54.7                                |
| KELBY           | 59.6              | 60.0               | 61.0                 | 57.4                | 60.4               | 60.3                | 60.8                  | 56.5                 | 59.5        | 45   | 1.02 | 0.77 | 57.8                                |
| KUNTZ           | 59.1              | 58.0               | 60.6                 | 56.8                | 59.4               | 58.9                | 60.3                  | 58.0                 | 58.9        | 56   | 0.80 | 0.81 | 55.9                                |
| AP604 CL        | 60.9              | 60.0               | 60.9                 | 58.0                | 58.8               | 60.5                | 62.0                  | 60.0                 | 60.1        | 25   | 0.67 | 0.57 | 54.0                                |
| WB GUNNISON     | 61.2              | 59.5               | 61.7                 | 58.4                | 60.7*              | 59.2                | 61.6                  | 59.5                 | 60.2        | 23   | 0.68 | 0.61 | 54.2                                |
| HANK            | 59.2              | 57.0               | 59.5                 | 55.6                | 59.9               | 60.6                | 61.4                  | 55.0                 | 58.5        | 60   | 1.57 | 0.90 | 44.2                                |
| CONAN           | 61.7              | 59.5               | 62.6                 | 59.5                | 61.4*              | 61.7                | 61.7                  | 58.0                 | 60.8        | 11   | 1.02 | 0.85 | 50.0                                |
| CORBIN          | 60.7              | 60.0               | 61.6                 | 58.8                | 60.3               | 61.2                | 61.7                  | 57.0                 | 60.2        | 22   | 1.05 | 0.88 | 52.1                                |
| ONEAL           | 60.9              | 58.5               | 62.6                 | 57.0                | 59.8               | 62.4                | 63.2                  | 59.0                 | 60.4        | 16   | 1.45 | 0.87 | 50.3                                |
| JEDD            | 60.2              | 58.5               | 60.7                 | 57.0                | 60.1               | 61.3                | 62.2                  | 56.5                 | 59.6        | 41   | 1.39 | 0.95 | 44.3                                |
| CHOTWHT1        | 62.3*             | 60.5               | 62.6                 | 60.0                | 61.6*              | 60.7                | 61.7                  | 57.5                 | 60.9        | 10   | 0.92 | 0.66 | 51.9                                |
| THATCHER        | 60.7              | 59.0               | 61.5                 | 58.8                | 59.1               | 61.5                | 60.7                  | 57.5                 | 59.8        | 32   | 0.91 | 0.80 | 48.7                                |
| FORTUNA         | 60.5              | 58.5               | 60.3                 | 56.3                | 60.7               | 61.0                | 62.8                  | 57.5                 | 59.7        | 35   | 1.39 | 0.88 | 55.4                                |
| HANKWHT1        | 61.3              | 60.5               | 62.1                 | 59.7                | 60.6               | 62.2                | 63.2                  | 58.5                 | 61.0        | 8    | 1.01 | 0.91 | 46.8                                |
| IMICHT79        | 60.3              | 58.5               | 60.4                 | 57.3                | 60.0               | 60.3                | 60.8                  | 58.0                 | 59.4        | 48   | 0.89 | 0.94 | 48.2                                |
| BUCKPRONTO      | 60.2              | 58.5               | 60.4                 | 57.9                | 59.7               | 60.3                | 61.2                  | 58.0                 | 59.5        | 44   | 0.85 | 0.97 | 57.3                                |
| LIMAGR2         | 60.3              | 58.5               | 60.7                 | 56.1                | 59.5               | 59.7                | 61.0                  | 58.0                 | 59.2        | 53   | 1.07 | 0.88 | 55.3                                |
| MT 0802         | 59.6              | 59.0               | 60.7                 | 58.2                | 60.4               | 60.3                | 61.4                  | 58.0                 | 59.7        | 34   | 0.81 | 0.90 | 51.3                                |
| MT 0852         | 60.4              | 59.0               | 60.9                 | 58.5                | 59.8               | 60.2                | 61.2                  | 58.5                 | 59.8        | 31   | 0.72 | 0.97 | 47.8                                |
| MT 0928         | 60.3              | 59.0               | 60.4                 | 59.1                | 59.9               | 59.6                | 61.2                  | 57.5                 | 59.6        | 40   | 0.70 | 0.79 | 51.2                                |
| MT 0967         | 60.3              | 58.0               | 59.6                 | 55.9                | 59.2               | 60.0                | 61.3                  | 57.0                 | 58.9        | 55   | 1.22 | 0.92 | 55.8                                |
| MT 0972         | 60.1              | 57.5               | 59.7                 | 57.4                | 60.2               | 60.3                | 60.8                  | 58.5                 | 59.3        | 50   | 0.80 | 0.74 | 51.8                                |
| MT 1002         | 59.9              | 57.5               | 60.0                 | 57.4                | 59.2               | 60.0                | 60.2                  | 56.5                 | 58.8        | 57   | 0.99 | 0.92 | 49.6                                |
| MT 1003         | 60.2              | 59.5               | 60.6                 | 57.1                | 59.8               | 61.0                | 61.4                  | 56.5                 | 59.5        | 43   | 1.20 | 0.92 | 48.1                                |
| MT 1004         | 59.7              | 59.5               | 61.6                 | 56.7                | 57.4               | 60.4                | 60.7                  | 58.0                 | 59.2        | 52   | 0.99 | 0.66 | 48.2                                |
| MT 1005         | 61.2              | 60.5               | 61.9                 | 58.6                | 59.1               | 61.2                | 62.0                  | 58.5                 | 60.4        | 15   | 0.92 | 0.83 | 48.1                                |
| MT 1007         | 60.5              | 60.5               | 61.6                 | 58.6                | 59.5               | 60.1                | 61.2                  | 55.0                 | 59.6        | 39   | 1.17 | 0.64 | 48.8                                |
| MT 1008         | 61.9              | 61.0               | 62.4                 | 60.0                | 62.3*              | 61.4                | 61.7                  | 58.5                 | 61.1        | 7    | 0.76 | 0.68 | 49.5                                |
| MT 1010         | 60.6              | 60.5               | 61.9                 | 58.4                | 59.7               | 61.8                | 61.2                  | 58.0                 | 60.2        | 21   | 0.93 | 0.81 | 50.3                                |
| MT 1011         | 60.5              | 58.0               | 60.7                 | 57.8                | 58.9               | 60.4                | 61.2                  | 56.0                 | 59.2        | 51   | 1.22 | 0.92 | 48.7                                |
| MT 1013         | 60.4              | 58.0               | 61.0                 | 58.8                | 59.8               | 60.3                | 61.1                  | 58.4                 | 59.7        | 33   | 0.76 | 0.83 | 49.2                                |
| MT 1015         | 58.7              | 57.5               | 59.7                 | 56.8                | 57.9               | 59.7                | 60.5                  | 57.0                 | 58.5        | 59   | 0.94 | 0.92 | 53.6                                |
| MT 1016         | 61.4              | 56.5               | 61.0                 | 58.4                | 60.6               | 60.9                | 62.1                  | 59.0                 | 60.0        | 28   | 1.04 | 0.63 | 49.2                                |
| MT 1020         | 61.2              | 59.5               | 61.8                 | 59.1                | 60.8*              | 61.6                | 61.5                  | 57.5                 | 60.4        | 14   | 1.00 | 0.88 | 49.6                                |
| MT 1027         | 59.4              | 56.0               | 58.9                 | 56.4                | 60.1               | 59.1                | 60.6                  | 55.0                 | 58.2        | 61   | 1.29 | 0.78 | 49.7                                |

(continued)

Table 2 (continued). 2011 test weight (lb/bu) summary for the advanced spring wheat nursery grown across Montana.

| Line or variety | Havre, dryland | Sidney, dryland | Moccasin, dryland | Huntley, dryland | Conrad, dryland | Bozeman, dryland | Bozeman, irrigated | Sidney, irrigated | average | rank | BYX  | RSQ  | Kalispell, rain-fed <sup>1</sup> |
|-----------------|----------------|-----------------|-------------------|------------------|-----------------|------------------|--------------------|-------------------|---------|------|------|------|----------------------------------|
| MT 1028         | 60.6           | 59.0            | 61.2              | 57.7             | 58.6            | 60.0             | 60.8               | 58.0              | 59.5    | 42   | 0.88 | 0.88 | 49.5                             |
| MT 1030         | 59.7           | 58.5            | 60.3              | 56.8             | 59.6            | 59.5             | 61.6               | 57.0              | 59.1    | 54   | 1.11 | 0.94 | 49.1                             |
| MT 1035         | 60.9           | 59.0            | 60.2              | 58.0             | 60.9*           | 62.1             | 62.9               | 60.5              | 60.5    | 13   | 0.81 | 0.54 | 49.0                             |
| MT 1036         | 60.6           | 58.0            | 60.0              | 57.5             | 59.9            | 59.7             | 61.7               | 57.5              | 59.4    | 47   | 1.01 | 0.89 | 48.7                             |
| MT 1038         | 60.3           | 58.5            | 61.0              | 58.5             | 59.4            | 60.2             | 61.1               | 57.5              | 59.6    | 38   | 0.89 | 0.94 | 49.3                             |
| MT 1049         | 58.6           | 57.5            | 59.7              | 54.9             | 55.0            | 59.5             | 60.4               | 56.0              | 57.7    | 64   | 1.29 | 0.71 | 58.0                             |
| MT 1053         | 60.8           | 58.5            | 61.2              | 59.3             | 61.3*           | 61.4             | 62.1               | 56.0              | 60.1    | 24   | 1.23 | 0.75 | 51.3                             |
| MT 1072         | 59.6           | 59.0            | 57.7              | 56.2             | 56.4            | 59.0             | 60.1               | 56.0              | 58.0    | 63   | 0.84 | 0.53 | 54.4                             |
| MT 1073         | 60.5           | 60.0            | 60.3              | 58.8             | 59.3            | 59.9             | 61.2               | 57.0              | 59.6    | 37   | 0.77 | 0.73 | 57.3                             |
| MTHW1057        | 61.4           | 59.5            | 62.5              | 57.6             | 58.1            | 62.2             | 61.7               | 59.0              | 60.2    | 20   | 1.13 | 0.70 | 51.2                             |
| MTHW1060        | 61.1           | 59.0            | 60.5              | 57.7             | 59.6            | 60.4             | 61.4               | 57.5              | 59.6    | 36   | 1.02 | 0.95 | 52.1                             |
| MTHW1064        | 61.2           | 58.5            | 60.8              | 57.7             | 58.6            | 62.1             | 62.3               | 57.5              | 59.8    | 30   | 1.29 | 0.87 | 54.7                             |
| MTHW1065        | 61.3           | 59.5            | 61.4              | 59.2             | 60.3            | 59.9             | 61.1               | 59.5              | 60.3    | 17   | 0.53 | 0.73 | 55.8                             |
| MTHW1069        | 59.5           | 58.0            | 59.0              | 55.1             | 56.3            | 59.9             | 60.3               | 56.5              | 58.1    | 62   | 1.17 | 0.76 | 54.9                             |
| REEDER          | 60.3           | 59.0            | 61.3              | 58.8             | 59.5            | 60.6             | 62.2               | 58.5              | 60.0    | 27   | 0.85 | 0.88 | 56.1                             |
| MOTT            | 60.9           | 60.0            | 62.1              | 59.3             | 60.4            | 62.6*            | 63.1               | <u>61.0</u>       | 61.2    | 6    | 0.74 | 0.63 | 52.4                             |
| MCNEAL          | 60.0           | 59.5            | 62.1              | 56.4             | 60.1            | 61.7             | 62.6               | 59.5              | 60.2    | 19   | 1.20 | 0.75 | 50.8                             |
| CHOTEAU         | 62.3*          | 60.0            | 62.9              | 59.8             | 61.3*           | 61.7             | 62.3               | 59.0              | 61.2    | 5    | 0.94 | 0.91 | 50.0                             |
| VIDA            | 61.4           | 59.0            | 62.2              | 58.8             | 60.3            | 61.7             | 62.5               | 59.5              | 60.7    | 12   | 0.97 | 0.89 | 52.8                             |
| DUCLAIR         | 60.9           | 60.0            | 62.5              | 60.7             | 61.6*           | 61.0             | 61.9               | 59.0              | 60.9    | 9    | 0.61 | 0.63 | 52.2                             |
| VIDAWHT1        | 60.1           | 60.0            | 63.3              | 55.2             | 59.4            | 62.1             | 61.7               | 60.0              | 60.2    | 18   | 1.28 | 0.57 | 53.5                             |
| BREAKER         | 59.9           | 59.5            | <u>63.4</u>       | 55.0             | 59.2            | 60.8             | 61.4               | 59.5              | 59.8    | 29   | 1.29 | 0.59 | 55.3                             |
| VANTAGE         | 62.4*          | 61.0            | 63.3              | 59.2             | 62.3*           | 62.1             | 62.6               | 60.0              | 61.6*   | 3    | 0.93 | 0.87 | 54.8                             |
| WB ROCKLAND     | <u>63.2</u>    | 60.0            | 62.0              | 60.3             | 61.5*           | 62.2             | <u>63.4</u>        | 57.0              | 61.2    | 4    | 1.28 | 0.76 | 53.7                             |
| site mean       | 60.6           | 59.0            | 61.1              | 57.9             | 59.9            | 60.8             | 61.6               | 57.9              | 59.8    |      | 1    | 1.00 | 51.8                             |
| CV (S/mean)     | 0.88           | 1 rep           | 1 rep             | 1.85             | 1.80            | 1 rep            | 1 rep              | 1 rep             | 1.4     |      |      |      | 1 rep                            |
| F-value         | 9.13**         |                 |                   | 6.14**           | 4.35**          |                  |                    |                   | 9.92**  |      |      |      |                                  |
| LSD (.05)       | 0.89           |                 |                   | 1.74             | 1.83            |                  |                    |                   | 0.8     |      |      |      |                                  |

Means followed by an asterisk are not significantly different at the .05 level when compared to the highest yielding wheat which is underlined

<sup>1</sup> The nursery at NWARC-Kalispell was severely infested with stripe rust and orange wheat blossom midge, data is shown but not included in average

Table 3. 2011 grain protein content (percent) summary for the advanced spring wheat nursery grown across Montana.

| Line or variety | Havre,<br>dryland | Sidney,<br>dryland | Moccasin<br>, dryland | Huntley,<br>dryland | Conrad,<br>dryland | Bozeman,<br>dryland | Bozeman,<br>irrigated | Sidney,<br>irrigated | average | BYX  | RSQ  | Kalispell,<br>rain-fed <sup>1</sup> |
|-----------------|-------------------|--------------------|-----------------------|---------------------|--------------------|---------------------|-----------------------|----------------------|---------|------|------|-------------------------------------|
| VOLT            | 13.4              | 15.4               | 15.0                  | 13.8                | 13.0               | 13.3                | 14.2                  | 15.9                 | 14.2    | 1.12 | 0.87 | 16.5                                |
| BRENNAN         | 14.6              | 15.3               | 16.2                  | 14.6                | 13.8               | 15.5                | 15.5                  | 17.3                 | 15.3    | 1.14 | 0.89 | 15.2                                |
| AGRIPR11        | 13.7              | 14.7               | 16.1                  | 15.5                | 13.6               | 14.5                | 14.3                  | 16.2                 | 14.8    | 0.88 | 0.60 | 18.2                                |
| SY TYRA         | 13.3              | 14.2               | 15.0                  | 14.1                | 12.0               | 13.6                | 13.5                  | 15.3                 | 13.9    | 1.04 | 0.80 | 15.7                                |
| SY605 CL        | 14.8              | 15.3               | 16.2                  | 14.5                | 14.3               | 15.4                | 16.7                  | 16.9                 | 15.5    | 0.96 | 0.75 | 17.1                                |
| SY SOREN        | 14.3              | 15.9               | 16.4                  | 14.2                | 13.8               | 15.3                | 15.2                  | 17.2                 | 15.3    | 1.25 | 0.91 | 16.3                                |
| KELBY           | 15.0              | 16.2               | 16.5                  | 14.7                | 13.6               | 16.0                | 15.8                  | 17.7                 | 15.7    | 1.34 | 0.92 | 15.9                                |
| KUNTZ           | 13.1              | 13.8               | 15.1                  | 13.9                | 12.8               | 12.3                | 14.2                  | 15.5                 | 13.8    | 1.02 | 0.68 | 16.9                                |
| AP604 CL        | 13.9              | 15.2               | 15.6                  | 14.7                | 14.0               | 14.8                | 15.9                  | 16.3                 | 15.1    | 0.90 | 0.86 | 14.8                                |
| WB GUNNISON     | 13.4              | 15.1               | 14.8                  | 14.1                | 13.3               | 14.8                | 14.0                  | 15.5                 | 14.4    | 0.78 | 0.76 | 16.8                                |
| HANK            | 14.1              | 15.4               | 15.8                  | 15.1                | 13.3               | 13.8                | 14.5                  | 16.3                 | 14.8    | 1.04 | 0.80 | 16.9                                |
| CONAN           | 14.1              | 16.2               | 16.0                  | 14.7                | 13.1               | 15.2                | 15.1                  | 16.3                 | 15.1    | 1.16 | 0.87 | 16.6                                |
| CORBIN          | 13.8              | 15.0               | 15.1                  | 14.1                | 14.7               | 13.9                | 14.7                  | 16.5                 | 14.7    | 0.75 | 0.59 | 16.7                                |
| ONEAL           | 13.6              | 15.0               | 15.8                  | 14.6                | 13.8               | 14.7                | 15.2                  | 16.1                 | 14.9    | 0.92 | 0.87 | 17.8                                |
| JEDD            | 13.7              | 15.2               | 15.8                  | 14.0                | 13.1               | 13.7                | 14.3                  | 16.4                 | 14.5    | 1.22 | 0.89 | 17.0                                |
| CHOTWHT1        | 14.1              | 14.9               | 15.5                  | 13.5                | 13.4               | 14.8                | 14.6                  | 16.7                 | 14.7    | 1.11 | 0.84 | 16.0                                |
| THATCHER        | 13.8              | 15.7               | 16.0                  | 15.7                | 13.8               | 13.8                | 14.9                  | 16.1                 | 15.0    | 0.92 | 0.63 | 18.0                                |
| FORTUNA         | 14.1              | 16.5               | 15.3                  | 14.9                | 13.6               | 15.1                | 16.0                  | 16.9                 | 15.3    | 1.19 | 0.87 | 17.7                                |
| HANKWHT1        | 14.1              | 15.7               | 16.0                  | 14.3                | 14.4               | 14.5                | 14.9                  | 16.2                 | 15.0    | 0.83 | 0.79 | 15.9                                |
| IMICHT79        | 14.5              | 15.7               | 15.7                  | 13.8                | 13.9               | 14.7                | 15.6                  | 16.4                 | 15.0    | 0.98 | 0.85 | 18.2                                |
| BUCKPRONTO      | 14.7              | 16.4               | 15.8                  | 14.7                | 14.1               | 15.4                | 16.2                  | 17.2                 | 15.6    | 1.12 | 0.93 | 17.0                                |
| LIMAGR2         | 13.5              | 15.5               | 15.4                  | 13.3                | 12.4               | 13.6                | 14.4                  | 16.0                 | 14.3    | 1.37 | 0.92 | 15.2                                |
| MT 0802         | 13.9              | 16.0               | 15.4                  | 14.7                | 13.6               | 15.3                | 15.7                  | 15.7                 | 15.0    | 0.85 | 0.74 | 18.1                                |
| MT 0852         | 14.1              | 16.1               | 15.8                  | 14.5                | 13.4               | 15.5                | 15.2                  | 16.0                 | 15.1    | 0.98 | 0.80 | 17.1                                |
| MT 0928         | 14.2              | 15.5               | 14.9                  | 14.4                | 13.3               | 14.5                | 15.3                  | 16.7                 | 13.0    | 1.87 | 0.10 | 17.8                                |
| MT 0967         | 14.6              | 15.1               | 15.1                  | 13.7                | 14.1               | 15.0                | 15.6                  | 16.2                 | 14.9    | 0.74 | 0.69 | 16.5                                |
| MT 0972         | 13.8              | 14.8               | 15.0                  | 14.5                | 12.9               | 14.5                | 15.1                  | 15.5                 | 14.5    | 0.87 | 0.88 | 18.6                                |
| MT 1002         | 14.2              | 15.4               | 14.8                  | 14.5                | 13.1               | 14.3                | 14.6                  | 16.3                 | 14.6    | 0.99 | 0.90 | 17.2                                |
| MT 1003         | 14.6              | 16.0               | 16.1                  | 14.0                | 13.5               | 15.5                | 15.6                  | 16.9                 | 15.3    | 1.21 | 0.88 | 17.1                                |
| MT 1004         | 14.9              | 16.2               | 15.7                  | 14.9                | 14.0               | 15.5                | 15.7                  | 17.1                 | 15.5    | 1.01 | 0.94 | 17.2                                |
| MT 1005         | 13.5              | 14.8               | 14.8                  | 12.9                | 13.2               | 13.5                | 15.2                  | 16.1                 | 14.2    | 1.15 | 0.82 | 16.8                                |
| MT 1007         | 14.0              | 15.2               | 15.0                  | 13.7                | 12.3               | 14.5                | 15.6                  | 16.6                 | 14.6    | 1.40 | 0.91 | 17.0                                |
| MT 1008         | 13.4              | 14.3               | 14.3                  | 13.4                | 12.5               | 13.5                | 13.9                  | 15.3                 | 13.8    | 0.92 | 0.97 | 17.9                                |
| MT 1010         | 13.6              | 15.0               | 14.9                  | 14.5                | 13.4               | 14.6                | 14.9                  | 15.9                 | 14.6    | 0.87 | 0.94 | 17.1                                |
| MT 1011         | 14.6              | 15.2               | 15.8                  | 14.5                | 14.2               | 15.2                | 15.3                  | 17.9                 | 15.3    | 1.16 | 0.80 | 17.5                                |
| MT 1013         | 13.9              | 14.9               | 15.1                  | 14.6                | 13.3               | 14.2                | 15.5                  | 16.4                 | 14.7    | 1.04 | 0.91 | 17.9                                |
| MT 1015         | 14.2              | 15.6               | 15.8                  | 13.9                | 13.9               | 14.6                | 15.8                  | 16.9                 | 15.1    | 1.16 | 0.90 | 18.2                                |
| MT 1016         | 14.2              | 15.6               | 15.6                  | 14.5                | 13.3               | 14.8                | 15.1                  | 16.5                 | 14.9    | 1.09 | 0.98 | 18.2                                |
| MT 1020         | 13.9              | 15.1               | 14.8                  | 14.7                | 12.9               | 14.7                | 14.9                  | 15.5                 | 14.6    | 0.82 | 0.82 | 16.9                                |
| MT 1027         | 13.9              | 14.8               | 14.7                  | 13.4                | 13.2               | 15.0                | 14.9                  | 16.5                 | 14.6    | 1.06 | 0.80 | 17.5                                |

(continued)

Table 3 (continued). 2011 protein content (percent) summary for the advanced spring wheat nursery grown across Montana.

| Line or variety | Havre,<br>dryland | Sidney,<br>dryland | Moccasin<br>, dryland | Huntley,<br>dryland | Conrad,<br>dryland | Bozeman,<br>dryland | Bozeman,<br>irrigated | Sidney,<br>irrigated | average     | BYX   | RSQ   | Kalispell,<br>rain-fed <sup>1</sup> |
|-----------------|-------------------|--------------------|-----------------------|---------------------|--------------------|---------------------|-----------------------|----------------------|-------------|-------|-------|-------------------------------------|
| MT 1028         | 14.4              | 15.1               | 15.2                  | 13.8                | 13.7               | 15.1                | 15.0                  | 16.4                 | 14.8        | 0.89  | 0.83  | 17.8                                |
| MT 1030         | 14.4              | 15.3               | 15.3                  | 14.1                | 12.9               | 14.4                | 15.5                  | 16.4                 | 14.8        | 1.16  | 0.94  | 17.9                                |
| MT 1035         | 14.0              | 15.6               | 15.4                  | 15.1                | 13.6               | 15.1                | 15.7                  | 16.3                 | 15.1        | 0.94  | 0.88  | 18.2                                |
| MT 1036         | 14.1              | 15.2               | 14.9                  | 13.7                | 13.4               | 14.8                | 14.6                  | 16.1                 | 14.6        | 0.90  | 0.86  | 17.7                                |
| MT 1038         | 14.0              | 15.2               | 14.7                  | 14.4                | 13.0               | 15.3                | 15.1                  | 16.3                 | 14.7        | 0.99  | 0.81  | 17.8                                |
| MT 1049         | 14.4              | 15.4               | 15.2                  | 14.0                | 14.3               | 14.8                | 15.3                  | 16.0                 | 14.9        | 0.68  | 0.82  | 16.8                                |
| MT 1053         | 13.2              | 13.9               | 14.2                  | 13.6                | 12.7               | 13.8                | 13.7                  | 15.2                 | 13.8        | 0.78  | 0.91  | 17.3                                |
| MT 1072         | 14.0              | 14.6               | 14.9                  | 14.0                | 13.4               | 14.9                | 14.9                  | 15.8                 | 14.6        | 0.77  | 0.86  | 16.6                                |
| MT 1073         | 13.8              | 14.3               | 14.6                  | 13.8                | 13.3               | 15.0                | 15.3                  | 15.5                 | 14.4        | 0.72  | 0.66  | 16.6                                |
| MTHW1057        | 13.4              | 14.4               | 14.4                  | 14.1                | 12.8               | 13.3                | 13.6                  | 14.9                 | 13.9        | 0.70  | 0.79  | 17.3                                |
| MTHW1060        | 13.7              | 14.9               | 14.8                  | 14.7                | 12.8               | 13.9                | 14.3                  | 16.2                 | 14.4        | 1.05  | 0.87  | 15.7                                |
| MTHW1064        | 13.2              | 15.6               | 14.9                  | 14.3                | 12.9               | 14.7                | 14.1                  | 15.8                 | 14.4        | 1.04  | 0.80  | 16.4                                |
| MTHW1065        | 14.1              | 15.8               | 16.2                  | 14.7                | 13.0               | 13.5                | 15.2                  | 15.7                 | 14.8        | 1.11  | 0.73  | 15.9                                |
| MTHW1069        | 14.0              | 14.9               | 14.9                  | 15.2                | 12.6               | 15.1                | 14.4                  | 16.4                 | 14.7        | 1.03  | 0.71  | 16.7                                |
| REEDER          | 14.2              | 15.5               | 15.6                  | 14.7                | 13.8               | 14.8                | 15.2                  | 15.9                 | 15.0        | 0.79  | 0.95  | 16.9                                |
| MOTT            | 14.1              | 15.4               | 15.7                  | 15.1                | 13.9               | 15.4                | 15.6                  | 16.1                 | 15.2        | 0.80  | 0.84  | 18.4                                |
| MCNEAL          | 13.8              | 15.4               | 14.8                  | 13.6                | 13.1               | 15.0                | 16.0                  | 15.9                 | 14.7        | 1.04  | 0.73  | 17.2                                |
| CHOTEAU         | 14.5              | 15.4               | 15.6                  | 14.6                | 13.2               | 14.3                | 15.7                  | 17.1                 | 15.1        | 1.27  | 0.94  | 17.2                                |
| VIDA            | 13.4              | 15.0               | 14.6                  | 15.1                | 12.5               | 14.3                | 15.2                  | 15.4                 | 14.4        | 0.94  | 0.69  | 17.8                                |
| DUCLAIR         | 14.3              | 14.1               | 15.1                  | 14.3                | 13.2               | 14.3                | 14.7                  | 15.9                 | 14.5        | 0.78  | 0.79  | 16.6                                |
| VIDAWHT1        | 13.4              | 14.1               | 14.6                  | 14.3                | 12.7               | 14.3                | 14.0                  | 15.4                 | 14.1        | 0.81  | 0.81  | 17.6                                |
| BREAKER         | 14.0              | 15.4               | 15.9                  | 13.9                | 13.6               | 14.7                | 14.7                  | 16.1                 | 14.8        | 0.98  | 0.87  | 17.6                                |
| VANTAGE         | 15.5              | 16.3               | 16.7                  | 16.7                | 14.6               | 15.8                | 16.4                  | 17.4                 | 16.2*       | 0.86  | 0.80  | 20.2                                |
| WB ROCKLAND     | 15.6              | 16.9               | 16.4                  | 15.5                | 14.6               | 16.9                | 16.9                  | 17.5                 | <u>16.3</u> | 0.96  | 0.78  | 18.0                                |
| site mean       | 14.0              | 15.3               | 15.4                  | 14.4                | 13.4               | 14.5                | 15.1                  | 16.3                 | 14.8        | 1.00  | 1.00  | 17.1                                |
| CV (S/mean)     | 1 rep             | 1 rep              | 1 rep                 | 1 rep               | 1 rep              | 1 rep               | 1 rep                 | 1 rep                | 2.87        | 1 rep | 1 rep | 1 rep                               |
| F-value         |                   |                    |                       |                     |                    |                     |                       |                      | 11.21**     |       |       |                                     |
| LSD (.05)       |                   |                    |                       |                     |                    |                     |                       |                      | 0.42        |       |       |                                     |

Means followed by an asterisk are not significantly different at the .05 level when compared to the highest yielding wheat which is underlined

<sup>1</sup> The nursery at NWARC-Kalispell was severely infested with stripe rust and orange wheat blossom midge, data is shown but not included in average

Table 4. 2011 heading date (days from January 1) summary for the advanced spring wheat nursery grown across Montana. 178= June 27

| Line or variety | Havre,<br>dryland | Sidney,<br>dryland | Moccasin,<br>dryland | Huntley,<br>dryland | Conrad,<br>dryland | Bozeman,<br>dryland | Bozeman,<br>irrigated | Sidney,<br>irrigated | average | rank | BYX  | RSQ  | Kalispell,<br>rain-fed <sup>1</sup> |
|-----------------|-------------------|--------------------|----------------------|---------------------|--------------------|---------------------|-----------------------|----------------------|---------|------|------|------|-------------------------------------|
| VOLT            | 185.7             | 187.4              | 191.0                | 180.3               | 195.0              | 196.0               | 195.0                 | 191.8                | 190.3   | 62   | 1.11 | 0.98 | 194                                 |
| BRENNAN         | 183.0             | 183.9              | 187.6                | 176.3               | 190.0*             | 190.0               | 188.0                 | 188.2*               | 185.9*  | 5    | 0.94 | 0.97 | 190                                 |
| AGRIPR11        | 185.1             | 185.7              | 191.3                | 180.3               | 193.3              | 193.0               | 191.0                 | 189.7                | 188.7   | 53   | 0.93 | 0.99 | 192                                 |
| SY TYRA         | 185.6             | 185.1              | 191.0                | 180.3               | 193.6              | 193.0               | 192.0                 | 189.2*               | 188.7   | 54   | 0.95 | 0.98 | 192                                 |
| SY605 CL        | 182.1*            | <u>183.0</u>       | 187.0                | 176.0               | 189.2*             | 191.0               | 188.0                 | 189.1*               | 185.7*  | 3    | 1.01 | 0.97 | 189                                 |
| SY SOREN        | 184.0             | 183.9*             | 189.3                | 179.0               | 191.1              | 192.0               | 191.0                 | 188.9*               | 187.4   | 22   | 0.94 | 0.99 | 191                                 |
| KELBY           | 1*09              | 183.8*             | 187.3*               | 176.3               | 191.3              | 190.0               | 190.0                 | 188.8*               | 186.2   | 8    | 1.04 | 0.98 | 190                                 |
| KUNTZ           | 184.7             | 184.7              | 190.4                | 179.0               | 191.8              | 191.0               | 191.0                 | 189.9                | 187.8   | 30   | 0.92 | 0.98 | 192                                 |
| AP604 CL        | 182.1             | 183.5*             | 189.0                | 176.3               | 191.3              | 190.0               | 190.0                 | <u>187.1</u>         | 186.2   | 9    | 1.05 | 0.98 | 189                                 |
| WB GUNNISON     | 184.7             | 185.4              | 191.0                | 178.7               | 192.0              | 192.0               | 191.0                 | 189.9                | 188.1   | 37   | 0.97 | 0.98 | 191                                 |
| HANK            | 183.4             | 183.7*             | 188.3*               | 176.7               | 190.2*             | 192.0               | 190.0                 | 188.3*               | 186.6   | 11   | 1.03 | 0.99 | 190                                 |
| CONAN           | 183.6             | 184.6              | 190.0                | 178.7               | 192.4              | 192.0               | 190.0                 | 189.7                | 187.6   | 25   | 0.99 | 0.99 | 191                                 |
| CORBIN          | 183.4             | 183.7*             | 188.3*               | 178.0               | 191.6              | 191.0               | 191.0                 | 189.3                | 187.0   | 18   | 0.99 | 0.99 | 191                                 |
| ONEAL           | 184.0             | 185.9              | 190.0                | 179.3               | 193.1              | 194.0               | 192.0                 | 190.0                | 188.5   | 50   | 1.03 | 0.99 | 192                                 |
| JEDD            | 184.7             | 184.7              | 187.9*               | 177.3               | 190.8              | 191.0               | 191.0                 | 187.9*               | 186.9   | 15   | 0.94 | 0.96 | 190                                 |
| CHOTWHT1        | 182.3             | 183.6*             | 187.3*               | 177.0               | 191.2              | 191.0               | 188.0                 | 187.6*               | 186.0*  | 7    | 0.98 | 0.98 | 189                                 |
| THATCHER        | 185.4             | 187.2              | 193.6                | 181.3               | 196.6              | 195.0               | 193.0                 | 192.7                | 190.6   | 63   | 1.08 | 0.97 | 196                                 |
| FORTUNA         | 183.6             | 184.3              | 190.0                | 179.7               | 194.3              | 192.0               | 192.0                 | 189.7                | 188.2   | 41   | 1.03 | 0.97 | 192                                 |
| HANKWHT1        | 182.6             | 184.6              | 188.3*               | 176.7               | 189.2*             | 191.0               | 190.0                 | 188.2*               | 186.3   | 10   | 0.97 | 0.97 | 190                                 |
| IMICHT79        | 184.0             | 184.5              | 191.0                | 180.0               | 192.4              | 193.0               | 191.0                 | 191.2                | 188.4   | 48   | 0.98 | 0.97 | 191                                 |
| BUCKPRONTO      | 181.7*            | 183.3*             | 186.7*               | 175.3*              | 190.3*             | 190.0               | 188.0                 | 188.2*               | 185.4*  | 2    | 1.03 | 0.97 | 187                                 |
| LIMAGR2         | 183.3             | 184.3              | 189.7                | 177.3               | 189.8*             | 192.0               | 191.0                 | 189.4                | 187.1   | 19   | 1.02 | 0.98 | 189                                 |
| MT 0802         | 186.0             | 185.6              | 193.7                | 180.7               | 193.8              | 196.0               | 195.0                 | 189.9                | 190.1   | 61   | 1.10 | 0.95 | 192                                 |
| MT 0852         | 184.7             | 184.7              | 190.3                | 179.3               | 192.3              | 192.0               | 191.0                 | 190.8                | 188.1   | 38   | 0.96 | 0.99 | 192                                 |
| MT 0928         | 184.9             | 185.2              | 190.3                | 179.3               | 193.3              | 195.0               | 192.0                 | 190.4                | 188.8   | 56   | 1.07 | 0.99 | 191                                 |
| MT 0967         | 182.0*            | 183.4*             | 187.9*               | 177.0               | 189.1*             | 191.0               | 188.0                 | 188.9*               | 185.9*  | 6    | 0.95 | 0.97 | 189                                 |
| MT 0972         | 184.3             | 184.8              | 190.3                | 178.3               | 192.7              | 192.0               | 192.0                 | 189.5                | 188.0   | 34   | 1.04 | 1.00 | 191                                 |
| MT 1002         | 185.0             | 184.9              | 190.3                | 180.0               | 193.2              | 194.0               | 192.0                 | 189.8                | 188.6   | 52   | 1.00 | 0.99 | 193                                 |
| MT 1003         | 183.8             | 184.1*             | 190.0                | 180.0               | 192.5              | 193.0               | 191.0                 | 189.4                | 188.0   | 35   | 0.97 | 0.99 | 191                                 |
| MT 1004         | 184.4             | 185.3              | 190.3                | 179.3               | 193.8              | 193.0               | 192.0                 | 189.5                | 188.5   | 51   | 1.03 | 1.00 | 191                                 |
| MT 1005         | 183.4             | 183.4*             | 187.9*               | 178.0               | 191.8              | 191.0               | 190.0                 | 188.4*               | 186.7   | 12   | 0.97 | 0.99 | 190                                 |
| MT 1007         | 183.7             | 184.2*             | 188.7                | 178.7               | 192.3              | 192.0               | 190.0                 | 187.7*               | 187.2   | 21   | 0.96 | 0.99 | 191                                 |
| MT 1008         | 184.7             | 184.9              | 191.3                | 181.0               | 195.1              | 193.0               | 194.0                 | 190.0                | 189.2   | 59   | 1.03 | 0.96 | 193                                 |
| MT 1010         | 183.7             | 184.7              | 189.7                | 179.0               | 192.9              | 193.0               | 191.0                 | 188.1*               | 187.8   | 31   | 1.01 | 0.99 | 192                                 |
| MT 1011         | 182.6             | 183.8*             | 189.0                | 177.3               | 191.4              | 191.0               | 190.0                 | 189.0*               | 186.8   | 13   | 1.02 | 0.99 | 191                                 |
| MT 1013         | 184.4             | 184.9              | 189.7                | 179.0               | 191.4              | 192.0               | 192.0                 | 188.5*               | 187.7   | 28   | 0.94 | 0.98 | 191                                 |
| MT 1015         | 185.2             | 185.7              | 191.4                | 180.0               | 193.3              | 193.0               | 192.0                 | 189.0*               | 188.7   | 55   | 0.96 | 0.99 | 192                                 |
| MT 1016         | 184.4             | 185.0              | 189.7                | 179.7               | 192.4              | 193.0               | 192.0                 | 190.7                | 188.4   | 49   | 0.98 | 0.99 | 192                                 |
| MT 1020         | 183.6             | 183.9*             | 189.7                | 179.3               | 192.2              | 192.0               | 191.0                 | 189.0*               | 187.6   | 26   | 0.97 | 0.99 | 191                                 |
| MT 1027         | 184.0             | 184.2*             | 190.4                | 179.3               | 193.6              | 192.0               | 190.0                 | 189.9                | 187.9   | 33   | 0.99 | 0.98 | 192                                 |

(continued)

Table 4 (continued). 2011 heading date (days from January 1) summary for the advanced spring wheat nursery grown across Montana. 178= June 27

| Line or variety | Havre,<br>dryland | Sidney,<br>dryland | Moccasin,<br>dryland | Huntley,<br>dryland | Conrad,<br>dryland | Bozeman,<br>dryland | Bozeman,<br>irrigated | Sidney,<br>irrigated | average      | rank | BYX  | RSQ  | Kalispell,<br>rain-fed <sup>1</sup> |
|-----------------|-------------------|--------------------|----------------------|---------------------|--------------------|---------------------|-----------------------|----------------------|--------------|------|------|------|-------------------------------------|
| MT 1028         | 184.0             | 184.6              | 190.0                | 180.0               | 193.3              | 192.0               | 192.0                 | 189.6                | 188.2        | 42   | 0.97 | 0.98 | 192                                 |
| MT 1030         | 185.0             | 183.9*             | 189.7                | 179.7               | 193.6              | 192.0               | 192.0                 | 189.4                | 188.2        | 43   | 0.98 | 0.98 | 192                                 |
| MT 1035         | 184.6             | 184.5              | 190.0                | 179.7               | 192.4              | 192.0               | 191.0                 | 190.0                | 188.0        | 36   | 0.94 | 1.00 | 192                                 |
| MT 1036         | 185.0             | 183.9*             | 190.7                | 179.7               | 193.4              | 193.0               | 191.0                 | 190.0                | 188.3        | 45   | 1.00 | 0.98 | 192                                 |
| MT 1038         | 184.0             | 185.1              | 190.3                | 179.0               | 193.2              | 193.0               | 191.0                 | 189.1*               | 188.1        | 39   | 1.02 | 0.99 | 192                                 |
| MT 1049         | 184.3             | 184.5              | 190.0                | 180.0               | 192.1              | 193.0               | 192.0                 | 189.4                | 188.2        | 44   | 0.96 | 1.00 | 191                                 |
| MT 1053         | 184.6             | 184.8              | 190.7                | 178.7               | 191.6              | 192.0               | 190.0                 | 190.0                | 187.8        | 32   | 0.95 | 0.98 | 192                                 |
| MT 1072         | 184.6             | 184.5              | 189.7                | 178.7               | 191.4              | 192.0               | 192.0                 | 188.8*               | 187.7        | 29   | 0.97 | 0.99 | 190                                 |
| MT 1073         | 183.8             | 183.6*             | 188.3*               | 177.7               | 190.3*             | 192.0               | 191.0                 | 188.3                | 186.9        | 16   | 0.99 | 0.99 | 190                                 |
| MTHW1057        | 185.3             | 186.0              | 192.0                | 180.3               | 193.0              | 195.0               | 193.0                 | 190.6                | 189.4        | 60   | 1.02 | 0.98 | 192                                 |
| MTHW1060        | <u>181.0</u>      | 183.7*             | 187.0                | 175.7*              | <u>188.9</u>       | <u>190.0</u>        | <u>188.0</u>          | 187.6*               | <u>185.2</u> | 1    | 0.98 | 0.97 | 188                                 |
| MTHW1064        | 184.3             | 185.3              | 188.3*               | 177.0               | 191.3              | 192.0               | 191.0                 | 189.9                | 187.4        | 23   | 1.02 | 0.97 | 190                                 |
| MTHW1065        | 182.6             | 184.2*             | 189.3                | 176.3               | 190.3*             | 192.0               | 190.0                 | 189.6                | 186.8        | 14   | 1.08 | 0.98 | 189                                 |
| MTHW1069        | 183.4             | 183.9*             | 188.7                | 178.3               | 192.2              | 192.0               | 190.0                 | 188.4*               | 187.1        | 20   | 0.99 | 0.99 | 191                                 |
| REEDER          | 184.6             | 184.3              | 188.0*               | 178.7               | 191.4              | 193.0               | 191.0                 | 190.1                | 187.6        | 27   | 0.97 | 0.97 | 191                                 |
| MOTT            | 184.7             | 185.5              | 191.3                | 180.7               | 194.2              | 194.0               | 193.0                 | 188.9*               | 189.1        | 58   | 1.01 | 0.97 | 194                                 |
| MCNEAL          | 184.0             | 185.4              | 190.3                | 180.0               | 192.3              | 195.0               | 193.0                 | 190.5                | 188.8        | 57   | 1.04 | 0.97 | 192                                 |
| CHOTEAU         | 184.3             | 183.8*             | 189.0                | 179.0               | 189.4*             | 191.0               | 190.0                 | 188.8                | 186.9        | 17   | 0.84 | 0.98 | 191                                 |
| VIDA            | 184.0             | 184.3              | 191.0                | 179.0               | 193.2              | 193.0               | 192.0                 | 189.6                | 188.3        | 46   | 1.07 | 1.00 | 191                                 |
| DUCLAIR         | 181.9*            | 183.6*             | 187.7                | 176.3               | 189.2              | 191.0               | 188.0                 | 188.1*               | 185.7        | 4    | 0.98 | 0.98 | 189                                 |
| VIDAWHT1        | 185.0             | 183.4*             | 190.0                | 177.3               | 192.1              | 192.0               | 191.0                 | 188.6*               | 187.4        | 24   | 1.05 | 0.98 | 191                                 |
| BREAKER         | 184.0             | 184.5              | 190.0                | 181.0               | 192.7              | 193.0               | 191.0                 | 190.0                | 188.3        | 47   | 0.91 | 0.98 | 192                                 |
| VANTAGE         | 186.1             | 186.6              | 195.7                | 181.7               | 196.6              | 198.0               | 196.0                 | 191.1                | 191.5        | 64   | 1.21 | 0.95 | 196                                 |
| WB ROCKLAND     | 184.9             | 185.4              | 187.0                | 175.7*              | 190.3*             | 194.0               | 192.0                 | 195.4                | 188.1        | 40   | 1.17 | 0.81 | 190                                 |
| site mean       | 184.0             | 184.6              | 189.7                | 178.7               | 192.1              | 192.4               | 191.1                 | 189.5                | 187.8        |      | 1.0  | 1.0  | 191                                 |
| CV (S/mean)     | 0.39              | 0.38               | 0.51                 | 0.30                | 0.57               | 1 rep               | 1 rep                 | 0.65                 | 0.4          |      |      |      | 0.33                                |
| F-value         | 6.61**            | 4.83**             | 8.78                 | 25.8**              | 6.94**             |                     |                       | 2.98**               | 17.85**      |      |      |      | 16.33**                             |
| LSD (.05)       | 1.19              | 1.17               | 1.57                 | 0.87                | 1.81               |                     |                       | 2.07                 | 0.8          |      |      |      | 1.08                                |

Means followed by an asterisk are not significantly different at the .05 level when compared to the highest yielding wheat which is underlined

<sup>1</sup> The nursery at NWARC-Kalispell was severely infested with stripe rust and orange wheat blossom midge, data is shown but not included in average

Table 5. 2011 plant height (inches) summary for the advanced spring wheat nursery grown across Montana.

| Line or variety | Sidney,<br>dryland | Moccasin,<br>dryland | Huntley,<br>dryland | Conrad,<br>dryland | Bozeman,<br>dryland | Bozeman,<br>irrigated | Sidney,<br>irrigated | average     | rank | BYX  | RSQ  | Kalispell,<br>rain-fed <sup>1</sup> |
|-----------------|--------------------|----------------------|---------------------|--------------------|---------------------|-----------------------|----------------------|-------------|------|------|------|-------------------------------------|
| VOLT            | 22.1               | 23.8                 | 33.2                | 31.4               | 29.7                | 32.9                  | 26.3                 | 28.5        | 37   | 1.13 | 0.92 | 30.5                                |
| BRENNAN         | 24.6               | 23.9                 | 29.6                | 29.1               | 27.0                | 28.9                  | 23.3                 | 26.6        | 59   | 0.69 | 0.96 | 28.9                                |
| AGRIPR11        | 24.1               | 24.9                 | 32.2                | 30.4               | 27.9                | 31.5                  | 23.5                 | 27.8        | 48   | 0.94 | 0.94 | 28.9                                |
| SY TYRA         | 22.3               | 21.5                 | 28.1                | 29.3               | 26.6                | 28.5                  | 22.1                 | 25.5        | 62   | 0.89 | 0.97 | 28.5                                |
| SY605 CL        | 26.5               | 24.2                 | 38.3                | 34.5               | 31.2                | 32.7                  | 26.1                 | 30.5        | 5    | 1.30 | 0.91 | 32.7                                |
| SY SOREN        | 22.6               | 23.2                 | 30.5                | 33.2               | 27.3                | 29.1                  | 23.6                 | 27.1        | 57   | 1.04 | 0.93 | 27.6                                |
| KELBY           | 22.1               | 23.1                 | 30.3                | 28.7               | 26.8                | 27.9                  | 23.2                 | 26.0        | 60   | 0.83 | 0.96 | 31.2                                |
| KUNTZ           | 25.2               | 23.7                 | 31.5                | 29.8               | 27.9                | 30.2                  | 24.7                 | 27.6        | 52   | 0.79 | 0.96 | 29.4                                |
| AP604 CL        | 26.3               | 25.4                 | 37.8                | 32.3               | 29.8                | 32.3                  | 23.5                 | 29.6        | 12   | 1.21 | 0.84 | 31.3                                |
| WB GUNNISON     | 22.7               | 24.0                 | 31.4                | 30.3               | 27.3                | 30.0                  | 24.6                 | 27.2        | 56   | 0.91 | 0.97 | 30.1                                |
| HANK            | 25.1               | 24.5                 | 32.2                | 30.4               | 28.6                | 30.1                  | 22.8                 | 27.7        | 51   | 0.90 | 0.92 | 29.2                                |
| CONAN           | 23.7               | 23.9                 | 31.2                | 31.7               | 27.8                | 30.2                  | 24.3                 | 27.6        | 53   | 0.94 | 0.99 | 28.7                                |
| CORBIN          | 25.1               | 24.4                 | 34.0                | 33.2               | 30.2                | 32.2                  | 25.1                 | 29.2        | 17   | 1.11 | 0.99 | 30.2                                |
| ONEAL           | 25.2               | 25.3                 | 30.8                | 32.4               | 29.9                | 31.9                  | 24.8                 | 28.6        | 30   | 0.87 | 0.95 | 29.7                                |
| JEDD            | 21.6               | 22.8                 | 28.0                | 27.7               | 24.9                | 26.8                  | 19.4                 | 24.5        | 63   | 0.82 | 0.87 | 23.5                                |
| CHOTWHT1        | 25.9               | 24.2                 | 33.5                | 34.0               | 30.6                | 33.1                  | 26.2                 | 29.6        | 13   | 1.08 | 0.98 | 32.3                                |
| THATCHER        | <u>34.6</u>        | 31.1                 | <u>41.6</u>         | <u>41.0</u>        | <u>37.4</u>         | <u>41.1</u>           | <u>33.0</u>          | <u>37.1</u> | 1    | 1.11 | 0.95 | 37.7                                |
| FORTUNA         | 30.4               | <u>31.6</u>          | 41.3*               | 39.4*              | 36.6*               | 38.1                  | 32.8*                | 35.7        | 2    | 1.08 | 0.96 | 38.8                                |
| HANKWHT1        | 22.4               | 23.6                 | 29.8                | 29.6               | 27.4                | 28.3                  | 21.0                 | 26.0        | 61   | 0.92 | 0.92 | 27.7                                |
| IMICHT79        | 24.9               | 24.5                 | 32.2                | 30.8               | 29.4                | 31.9                  | 25.5                 | 28.5        | 38   | 0.89 | 0.97 | 30.8                                |
| BUCKPRONTO      | 24.1               | 24.2                 | 33.5                | 32.3               | 27.8                | 29.8                  | 25.8                 | 28.2        | 42   | 0.97 | 0.93 | 34.0                                |
| LIMAGR2         | 23.3               | 25.8                 | 30.7                | 31.7               | 30.0                | 32.0                  | 22.8                 | 28.0        | 46   | 0.99 | 0.88 | 30.0                                |
| MT 0802         | 26.5               | 28.6                 | 33.2                | 34.3               | 31.2                | 35.5                  | 27.9                 | 31.0        | 4    | 0.87 | 0.89 | 36.5                                |
| MT 0852         | 25.9               | 25.8                 | 32.6                | 34.0               | 30.4                | 33.2                  | 24.2                 | 29.4        | 15   | 1.05 | 0.95 | 30.8                                |
| MT 0928         | 24.9               | 25.7                 | 34.0                | 33.3               | 29.6                | 33.4                  | 27.5                 | 29.8        | 11   | 1.00 | 0.96 | 34.0                                |
| MT 0967         | 25.5               | 25.2                 | 32.8                | 32.5               | 30.5                | 32.5                  | 24.8                 | 29.1        | 18   | 0.99 | 0.98 | 31.6                                |
| MT 0972         | 25.9               | 24.7                 | 32.0                | 34.9               | 30.7                | 32.4                  | 25.2                 | 29.4        | 16   | 1.05 | 0.94 | 31.3                                |
| MT 1002         | 24.6               | 24.7                 | 32.9                | 32.8               | 30.1                | 32.2                  | 26.7                 | 29.1        | 19   | 0.99 | 0.99 | 32.3                                |
| MT 1003         | 23.6               | 23.0                 | 31.9                | 32.9               | 28.0                | 30.8                  | 24.4                 | 27.8        | 49   | 1.09 | 0.98 | 31.5                                |
| MT 1004         | 24.8               | 23.3                 | 33.1                | 32.2               | 29.3                | 30.8                  | 27.5                 | 28.7        | 28   | 0.94 | 0.91 | 30.9                                |
| MT 1005         | 24.6               | 23.6                 | 34.1                | 33.0               | 29.6                | 31.9                  | 26.1                 | 29.0        | 22   | 1.11 | 0.98 | 30.5                                |
| MT 1007         | 23.6               | 23.6                 | 32.0                | 32.2               | 28.7                | 29.8                  | 23.7                 | 27.6        | 54   | 1.04 | 0.98 | 30.5                                |
| MT 1008         | 24.3               | 24.1                 | 31.7                | 32.8               | 29.4                | 31.1                  | 25.6                 | 28.4        | 39   | 0.98 | 0.99 | 32.4                                |
| MT 1010         | 24.9               | 24.7                 | 32.9                | 33.5               | 29.7                | 32.2                  | 25.3                 | 29.0        | 23   | 1.05 | 1.00 | 32.2                                |
| MT 1011         | 24.3               | 22.5                 | 33.2                | 30.5               | 28.7                | 31.8                  | 23.4                 | 27.8        | 50   | 1.12 | 0.95 | 28.9                                |
| MT 1013         | 24.0               | 22.4                 | 30.2                | 32.0               | 27.4                | 31.6                  | 23.8                 | 27.4        | 55   | 1.04 | 0.96 | 31.4                                |
| MT 1015         | 23.6               | 24.0                 | 28.7                | 31.1               | 27.2                | 30.1                  | 25.0                 | 27.1        | 58   | 0.76 | 0.93 | 32.1                                |
| MT 1016         | 25.0               | 24.7                 | 33.1                | 32.7               | 30.5                | 32.3                  | 25.4                 | 29.1        | 20   | 1.03 | 0.99 | 31.8                                |
| MT 1020         | 25.1               | 25.2                 | 31.1                | 31.7               | 29.0                | 30.7                  | 24.0                 | 28.1        | 45   | 0.85 | 0.96 | 30.6                                |
| MT 1027         | 24.2               | 23.5                 | 32.9                | 33.7               | 29.1                | 30.9                  | 26.3                 | 28.7        | 29   | 1.07 | 0.96 | 30.9                                |

(continued)

Table 5 (continued). 2011 plant height (inches) summary for the advanced spring wheat nursery grown across Montana.

| Line or variety | Sidney, dryland | Moccasin, dryland | Huntley, dryland | Conrad, dryland | Bozeman, dryland | Bozeman, irrigated | Sidney, irrigated | average | rank | BYX  | RSQ  | Kalispell, rain-fed <sup>1</sup> |
|-----------------|-----------------|-------------------|------------------|-----------------|------------------|--------------------|-------------------|---------|------|------|------|----------------------------------|
| MT 1028         | 24.9            | 23.5              | 32.1             | 33.0            | 29.2             | 31.2               | 23.7              | 28.2    | 43   | 1.08 | 0.98 | 32.7                             |
| MT 1030         | 24.6            | 23.1              | 32.7             | 34.1            | 29.2             | 30.7               | 26.0              | 28.6    | 31   | 1.08 | 0.94 | 32.8                             |
| MT 1035         | 24.0            | 23.0              | 31.8             | 33.5            | 29.4             | 31.9               | 24.4              | 28.3    | 40   | 1.15 | 0.98 | 31.5                             |
| MT 1036         | 25.1            | 24.0              | 32.1             | 32.7            | 29.4             | 32.2               | 26.0              | 28.8    | 26   | 0.97 | 0.98 | 31.9                             |
| MT 1038         | 25.0            | 22.4              | 32.4             | 33.1            | 29.1             | 31.6               | 24.1              | 28.2    | 44   | 1.14 | 0.97 | 32.6                             |
| MT 1049         | 25.2            | 23.8              | 31.9             | 32.2            | 29.4             | 31.0               | 26.5              | 28.6    | 32   | 0.89 | 0.97 | 30.8                             |
| MT 1053         | 24.9            | 25.0              | 32.1             | 32.3            | 28.6             | 30.4               | 25.2              | 28.3    | 41   | 0.88 | 0.98 | 29.1                             |
| MT 1072         | 24.3            | 26.2              | 32.8             | 32.1            | 29.6             | 32.0               | 23.2              | 28.6    | 33   | 1.01 | 0.92 | 30.6                             |
| MT 1073         | 24.0            | 24.3              | 33.7             | 30.9            | 30.0             | 31.4               | 25.7              | 28.6    | 34   | 1.00 | 0.95 | 32.4                             |
| MTHW1057        | 24.2            | 24.5              | 33.2             | 34.2            | 29.5             | 31.5               | 24.3              | 28.8    | 27   | 1.16 | 0.98 | 30.2                             |
| MTHW1060        | 24.2            | 25.5              | 32.2             | 31.6            | 30.1             | 31.7               | 24.8              | 28.6    | 35   | 0.93 | 0.96 | 28.6                             |
| MTHW1064        | 25.4            | 25.9              | 33.5             | 34.6            | 31.2             | 32.7               | 27.3              | 30.1    | 8    | 1.00 | 0.97 | 34.1                             |
| MTHW1065        | 25.2            | 27.2              | 33.2             | 33.8            | 31.8             | 33.4               | 28.4              | 30.4    | 6    | 0.88 | 0.93 | 32.9                             |
| MTHW1069        | 23.7            | 23.5              | 32.0             | 31.6            | 28.9             | 30.5               | 25.3              | 27.9    | 47   | 0.97 | 0.98 | 30.0                             |
| REEDER          | 25.7            | 23.9              | 34.5             | 33.5            | 30.4             | 33.5               | 27.8              | 29.9    | 9    | 1.08 | 0.95 | 33.2                             |
| MOTT            | 26.4            | 25.1              | 35.5             | 37.4            | 31.7             | 36.1               | 27.9              | 31.4    | 3    | 1.31 | 0.97 | 31.9                             |
| MCNEAL          | 26.3            | 26.0              | 31.5             | 34.0            | 30.9             | 35.0               | 29.3              | 30.4    | 7    | 0.83 | 0.80 | 32.4                             |
| CHOTEAU         | 24.5            | 23.3              | 33.1             | 32.8            | 29.1             | 31.7               | 26.1              | 28.6    | 36   | 1.07 | 0.98 | 32.6                             |
| VIDA            | 25.6            | 24.4              | 33.5             | 33.8            | 29.6             | 32.9               | 22.9              | 29.0    | 24   | 1.20 | 0.95 | 33.3                             |
| DUCLAIR         | 24.0            | 26.1              | 33.2             | 32.6            | 30.6             | 32.6               | 25.0              | 29.1    | 21   | 1.03 | 0.96 | 33.0                             |
| VIDAWHT1        | 25.0            | 25.0              | 33.6             | 34.8            | 30.1             | 32.9               | 28.2              | 29.9    | 10   | 1.04 | 0.94 | 31.1                             |
| BREAKER         | 24.5            | 25.3              | 33.6             | 33.4            | 30.4             | 34.4               | 24.9              | 29.5    | 14   | 1.17 | 0.97 | 32.1                             |
| VANTAGE         | 24.6            | 23.9              | 33.6             | 32.7            | 29.3             | 32.6               | 26.0              | 29.0    | 25   | 1.09 | 0.99 | 32.8                             |
| WB ROCKLAND     | 21.0            | 21.6              | 27.6             | 24.4            | 23.7             | 24.8               | 21.9              | 23.6    | 64   | 0.55 | 0.82 | 25.7                             |
| site mean       | 24.7            | 24.5              | 32.7             | 32.5            | 29.4             | 31.7               | 25.3              | 28.7    |      | 1.0  | 1.0  | 31.2                             |
| CV (S/mean)     | 4.24            | 4.13              | 4.50             | 3.95            | 2.85             | 2.46               | 5.36              | 6.5     |      |      |      | 5.4                              |
| F-value         | 8.83**          | 8.41**            | 8.28**           | 9.95**          | 16.23**          | 26.13**            | 7.95**            | 27.02** |      |      |      | 4.98**                           |
| LSD (.05)       | 1.77            | 1.68              | 2.39             | 2.14            | 1.39             | 1.30               | 2.26              | 1.1     |      |      |      | 2.9                              |

Means followed by an asterisk are not significantly different at the .05 level when compared to the highest yielding wheat which is underlined

<sup>1</sup> The nursery at NWARC-Kalispell was severely infested with stripe rust and orange wheat blossom midge, data is shown but not included in average

Table 6. 2011 over-all summary for the advanced spring wheat nursery grown across Montana.

| Line or variety | Grain yield (bu/ac) |      | Test weight (lb/bu) |      | Grain protein (%) |      | Heading date (178= June 27) |      | Plant height (in) |      |
|-----------------|---------------------|------|---------------------|------|-------------------|------|-----------------------------|------|-------------------|------|
|                 | AVE                 | RANK | AVE                 | RANK | AVE               | RANK | AVE                         | RANK | AVE               | RANK |
| VOLT            | 50.4*               | 12   | 59.5                | 46   | 14.2              | 56   | 190.3                       | 62   | 28.5              | 37   |
| BRENNAN         | 47.6                | 42   | 61.9*               | 2    | 15.3              | 7    | 185.9*                      | 5    | 26.6              | 59   |
| AGRIPR11        | 48.3                | 34   | <u>62.3</u>         | 1    | 14.8              | 28   | 188.7                       | 53   | 27.8              | 48   |
| SY TYRA         | 50.8*               | 10   | 60.1                | 26   | 13.9              | 59   | 188.7                       | 54   | 25.5              | 62   |
| SY605 CL        | 49.0                | 27   | 58.6                | 58   | 15.5              | 5    | 185.7*                      | 3    | 30.5              | 5    |
| SY SOREN        | 50.9*               | 8    | 59.4                | 49   | 15.3              | 8    | 187.4                       | 22   | 27.1              | 57   |
| KELBY           | 44.6                | 59   | 59.5                | 45   | 15.7              | 3    | 186.2                       | 8    | 26.0              | 60   |
| KUNTZ           | 50.4*               | 13   | 58.9                | 56   | 13.8              | 61   | 187.8                       | 30   | 27.6              | 52   |
| AP604 CL        | 48.2                | 35   | 60.1                | 25   | 15.1              | 13   | 186.2                       | 9    | 29.6              | 12   |
| WB GUNNISON     | 46.8                | 54   | 60.2                | 23   | 14.4              | 50   | 188.1                       | 37   | 27.2              | 56   |
| HANK            | 47.7                | 41   | 58.5                | 60   | 14.8              | 29   | 186.6                       | 11   | 27.7              | 51   |
| CONAN           | 43.2                | 61   | 60.8                | 11   | 15.1              | 14   | 187.6                       | 25   | 27.6              | 53   |
| CORBIN          | 48.1                | 36   | 60.2                | 22   | 14.7              | 34   | 187.0                       | 18   | 29.2              | 17   |
| ONEAL           | 48.6                | 31   | 60.4                | 16   | 14.9              | 24   | 188.5                       | 50   | 28.6              | 30   |
| JEDD            | 46.4                | 56   | 59.6                | 41   | 14.5              | 47   | 186.9                       | 15   | 24.5              | 63   |
| CHOTWHT1        | 49.3                | 23   | 60.9                | 10   | 14.7              | 35   | 186.0*                      | 7    | 29.6              | 13   |
| THATCHER        | 38.1                | 64   | 59.8                | 32   | 15.0              | 19   | 190.6                       | 63   | <u>37.1</u>       | 1    |
| FORTUNA         | 41.7                | 62   | 59.7                | 35   | 15.3              | 9    | 188.2                       | 41   | 35.7              | 2    |
| HANKWHT1        | 47.3                | 48   | 61.0                | 8    | 15.0              | 20   | 186.3                       | 10   | 26.0              | 61   |
| IMICHT79        | 46.7                | 55   | 59.4                | 48   | 15.0              | 21   | 188.4                       | 48   | 28.5              | 38   |
| BUCKPRONTO      | 49.4                | 21   | 59.5                | 44   | 15.6              | 4    | 185.4*                      | 2    | 28.2              | 42   |
| LIMAGR2         | 49.6                | 19   | 59.2                | 53   | 14.3              | 55   | 187.1                       | 19   | 28.0              | 46   |
| MT 0802         | 48.6                | 32   | 59.7                | 34   | 15.0              | 22   | 190.1                       | 61   | 31.0              | 4    |
| MT 0852         | 45.8                | 57   | 59.8                | 31   | 15.1              | 15   | 188.1                       | 38   | 29.4              | 15   |
| MT 0928         | 49.9                | 18   | 59.6                | 40   | 13.0              | 64   | 188.8                       | 56   | 29.8              | 11   |
| MT 0967         | 48.6                | 33   | 58.9                | 55   | 14.9              | 25   | 185.9*                      | 6    | 29.1              | 18   |
| MT 0972         | 49.6                | 20   | 59.3                | 50   | 14.5              | 48   | 188.0                       | 34   | 29.4              | 16   |
| MT 1002         | 49.1                | 25   | 58.8                | 57   | 14.6              | 40   | 188.6                       | 52   | 29.1              | 19   |
| MT 1003         | 47.5                | 45   | 59.5                | 43   | 15.3              | 10   | 188.0                       | 35   | 27.8              | 49   |
| MT 1004         | 47.4                | 46   | 59.2                | 52   | 15.5              | 6    | 188.5                       | 51   | 28.7              | 28   |
| MT 1005         | 49.4                | 22   | 60.4                | 15   | 14.2              | 57   | 186.7                       | 12   | 29.0              | 22   |
| MT 1007         | 50.9*               | 9    | 59.6                | 39   | 14.6              | 41   | 187.2                       | 21   | 27.6              | 54   |
| MT 1008         | 52.8*               | 3    | 61.1                | 7    | 13.8              | 62   | 189.2                       | 59   | 28.4              | 39   |
| MT 1010         | 48.8                | 28   | 60.2                | 21   | 14.6              | 42   | 187.8                       | 31   | 29.0              | 23   |
| MT 1011         | 45.5                | 58   | 59.2                | 51   | 15.3              | 11   | 186.8                       | 13   | 27.8              | 50   |
| MT 1013         | 48.0                | 38   | 59.7                | 33   | 14.7              | 36   | 187.7                       | 28   | 27.4              | 55   |
| MT 1015         | 47.2                | 50   | 58.5                | 59   | 15.1              | 16   | 188.7                       | 55   | 27.1              | 58   |
| MT 1016         | 51.9*               | 5    | 60.0                | 28   | 14.9              | 26   | 188.4                       | 49   | 29.1              | 20   |
| MT 1020         | 49.1                | 26   | 60.4                | 14   | 14.6              | 43   | 187.6                       | 26   | 28.1              | 45   |
| MT 1027         | 47.9                | 40   | 58.2                | 61   | 14.6              | 44   | 187.9                       | 33   | 28.7              | 29   |

(continued)

Table 6 (continued). 2011 over-all summary for the advanced spring wheat nursery grown across Montana.

| Line or variety | Grain yield (bu/ac) |      | Test weight (lb/bu) |      | Grain protein (%) |          | Heading date (178= June 27) |      | Plant height (in) |      |
|-----------------|---------------------|------|---------------------|------|-------------------|----------|-----------------------------|------|-------------------|------|
|                 | AVE                 | RANK | AVE                 | RANK | AVE               | RANK     | AVE                         | RANK | AVE               | RANK |
| MT 1028         | 47.4                | 47   | 59.5                | 42   | 14.8              | 30       | 188.2                       | 42   | 28.2              | 43   |
| MT 1030         | 48.0                | 39   | 59.1                | 54   | 14.8              | 31       | 188.2                       | 43   | 28.6              | 31   |
| MT 1035         | 47.2                | 51   | 60.5                | 13   | 15.1              | 17       | 188.0                       | 36   | 28.3              | 40   |
| MT 1036         | 47.6                | 43   | 59.4                | 47   | 14.6              | 45       | 188.3                       | 45   | 28.8              | 26   |
| MT 1038         | 48.1                | 37   | 59.6                | 38   | 14.7              | 37       | 188.1                       | 39   | 28.2              | 44   |
| MT 1049         | 48.8                | 29   | 57.7                | 64   | 14.9              | 27       | 188.2                       | 44   | 28.6              | 32   |
| MT 1053         | <u>54.5</u>         | 1    | 60.1                | 24   | 13.8              | 63       | 187.8                       | 32   | 28.3              | 41   |
| MT 1072         | 50.4*               | 14   | 58.0                | 63   | 14.6              | 46       | 187.7                       | 29   | 28.6              | 33   |
| MT 1073         | 51.9*               | 6    | 59.6                | 37   | 14.4              | 51       | 186.9                       | 16   | 28.6              | 34   |
| MTHW1057        | 52.2*               | 4    | 60.2                | 20   | 13.9              | 60       | 189.4                       | 60   | 28.8              | 27   |
| MTHW1060        | 48.8                | 30   | 59.6                | 36   | 14.4              | 52       | <u>185.2</u>                | 1    | 28.6              | 35   |
| MTHW1064        | 49.3                | 24   | 59.8                | 30   | 14.4              | 53       | 187.4                       | 23   | 30.1              | 8    |
| MTHW1065        | 44.1                | 60   | 60.3                | 17   | 14.8              | 32       | 186.8                       | 14   | 30.4              | 6    |
| MTHW1069        | 51.9*               | 7    | 58.1                | 62   | 14.7              | 38       | 187.1                       | 20   | 27.9              | 47   |
| REEDER          | 50.1                | 16   | 60.0                | 27   | 15.0              | 23       | 187.6                       | 27   | 29.9              | 9    |
| MOTT            | 47.3                | 49   | 61.2                | 6    | 15.2              | 12       | 189.1                       | 58   | 31.4              | 3    |
| MCNEAL          | 47.6                | 44   | 60.2                | 19   | 14.7              | 39       | 188.8                       | 57   | 30.4              | 7    |
| CHOTEAU         | 50.1                | 17   | 61.2                | 5    | 15.1              | 18       | 186.9                       | 17   | 28.6              | 36   |
| VIDA            | 50.5*               | 11   | 60.7                | 12   | 14.4              | 54       | 188.3                       | 46   | 29.0              | 24   |
| DUCLAIR         | 50.4*               | 15   | 60.9                | 9    | 14.5              | 49       | 185.7                       | 4    | 29.1              | 21   |
| VIDAWHT1        | 54.5*               | 2    | 60.2                | 18   | 14.1              | 58       | 187.4                       | 24   | 29.9              | 10   |
| BREAKER         | 46.9                | 52   | 59.8                | 29   | 14.8              | 33       | 188.3                       | 47   | 29.5              | 14   |
| VANTAGE         | 46.9                | 53   | 61.6*               | 3    | 16.2*             | 2        | 191.5                       | 64   | 29.0              | 25   |
| WB ROCKLAND     | 41.4                | 63   | 61.2                | 4    | <u>16.3</u>       | <u>1</u> | 188.1                       | 40   | 23.6              | 64   |
| SITE MEAN       | 48.4                |      | 59.8                |      | 14.8              |          | 187.8                       |      | 28.7              |      |
| C.V. (S/MEAN %) | 8.6                 |      | 1.4                 |      | 2.87              |          | 0.4                         |      | 6.5               |      |
| F-value         | 3.67**              |      | 9.92**              |      | 11.21**           |          | 17.85**                     |      | 27.02**           |      |
| LSD (.05)       | 4.1                 |      | 0.8                 |      | 0.42              |          | 0.8                         |      | 1.1               |      |

Means followed by an asterisk are not significantly different at the .05 level when compared to the highest yielding wheat which is underlined

<sup>1</sup> The nursery at NWARC-Kalispell was severely infested with stripe rust and orange wheat blossom midge, data is shown but not included in average