

Project Title: Evaluation of Winter Wheat Cultivars for Agronomic Performance and Disease Resistance.

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Objectives: To evaluate winter wheat varieties and experimental lines for agronomic performance and disease resistance in environments and cropping systems representative of northwestern Montana.

Results:

The 2007-2008 growing season was wetter and cooler than normal. This delayed plant development such that the average Julian heading date for the nursery was 166 (June 15) as opposed to 155 (June 4) for the previous year. Hawken and Tiber had the earliest and latest heading dates, respectively. The cool conditions also appeared to have suppressed the development of foliar diseases and extended the grain filling period, benefiting yields in the process. Jagalene, Pryor, Ripper, Promontory, Yellowstone, and Bill Brown all produced yields greater than 140 bu/A. Yields averaged 127 bu/A, as compared to 91 bu/A during the previous year, and ranged from a high of 147 bu/A for MTS0713 to a low of 101 bu/A for Rampart. Test weights also were higher than normal, averaging 64.5 lb/bu as compared to 59.2 lb/bu during the previous year. Plant heights were normal, averaging 39 inches. However, lodging was more severe in 2008 compared to 2007, averaging 30 and 2 percent, respectively. Rocky and MTS0608 were most susceptible to lodging, having scores of 88 percent. Protein content was normal despite the higher grain yields, and averaged 12.2 percent for the nursery. Protein levels were highest for Vangard (14.8) and MTS0633 (14.4) while Pryor and NuSky had the lowest concentrations (10.6).

Summary:

Overall, the 2007-2008 growing season was favorable for winter wheat production, resulting in higher yields and test weights compared to the previous year. Diseases were absent, lodging was more severe, and protein levels were about average.

Future Plans:

Continue to evaluate winter wheat for the purpose of identifying varieties that are best suited for District 1.

Table 1. Agronomic data from the intrastate winter wheat nursery grown at Kalispell, MT.

| Planted: September 13, 2007 | | Field D3 | | | Harvested: August 12, 2008 | | | |
|-----------------------------|-------------------|----------|-----------------|--------------|----------------------------|--------------|---------|---------|
| Entry | Cultivar | Yield | Test | Foliar | Heading | Plant | Lodging | Protein |
| | | bu/ac | weight lb/bu | disease % | date Julian | height in | % | % |
| 49 | MTS0713 | 147.0 | 65.2 | 0 | 167.7 | 37.1 | 10.0 | 11.1 |
| 47 | MTW06118 (HWW) | 146.9 | 66.1 | 0 | 167.7 | 40.9 | 0.0 | 10.9 |
| 6 | Jagalene | 145.3 | 65.5 | 0 | 166.3 | 37.0 | 1.7 | 12.6 |
| 37 | DH00-18-196 | 142.5 | 65.2 | 0 | 169.3 | 39.2 | 25.0 | 11.0 |
| 8 | Pryor | 142.1 | 64.3 | 0 | 168.7 | 35.2 | 0.0 | 10.6 |
| 30 | Ripper | 141.8 | 63.9 | 0 | 158.3 | 34.4 | 3.3 | 12.7 |
| 28 | MTS0532 (HWW) | 141.7 | 64.6 | 0 | 166.7 | 37.3 | 11.7 | 12.0 |
| 11 | Promontory | 141.6 | 66.0 | 0 | 168.3 | 41.2 | 31.7 | 11.0 |
| 24 | MT0495 | 141.4 | 65.3 | 0 | 167.0 | 38.1 | 5.7 | 11.2 |
| 25 | MTS04114 (HWW) | 141.3 | 64.7 | 0 | 167.3 | 39.1 | 15.0 | 11.9 |
| 46 | MT06103 | 141.2 | 64.7 | 0 | 164.3 | 40.9 | 0.0 | 13.4 |
| 10 | Yellowstone | 140.9 | 63.5 | 0 | 169.0 | 40.6 | 6.7 | 11.9 |
| 35 | Bill Brown | 140.8 | 64.9 | 0 | 161.7 | 36.2 | 15.0 | 10.8 |
| 26 | MTS04120 | 140.2 | 65.6 | 0 | 167.7 | 41.7 | 5.0 | 11.4 |
| 5 | Ledger | 138.9 | 64.9 | 0 | 164.7 | 37.4 | 5.0 | 11.9 |
| 29 | MT0552 | 138.8 | 65.6 | 0 | 164.7 | 38.2 | 0.0 | 11.7 |
| 2 | CDC Falcon | 138.5 | 64.2 | 0 | 167.7 | 35.3 | 1.7 | 11.4 |
| 45 | MT06102 | 136.9 | 64.3 | 0 | 164.3 | 41.6 | 1.7 | 12.9 |
| 27 | MTS0531 (HWW) | 135.4 | 63.6 | 0 | 167.0 | 37.7 | 18.3 | 12.3 |
| 19 | Hyalite (CL, HWW) | 134.6 | 63.9 | 0 | 164.3 | 39.9 | 11.7 | 13.0 |
| 34 | BZ9W02-2051 | 133.0 | 65.8 | 0 | 168.7 | 37.4 | 28.3 | 11.0 |
| 16 | Wahoo | 132.9 | 63.9 | 0 | 162.7 | 37.8 | 23.3 | 11.7 |
| 33 | Hawken | 129.8 | 64.6 | 0 | 157.0 | 33.3 | 1.7 | 12.3 |
| 1 | Genou | 127.6 | 65.0 | 0 | 167.7 | 40.9 | 70.0 | 12.8 |
| 21 | Bond CL | 127.4 | 63.4 | 0 | 158.0 | 39.1 | 48.3 | 12.0 |
| 18 | Carter | 127.0 | 65.0 | 0 | 166.0 | 34.9 | 3.3 | 12.2 |
| 36 | DH99-37-100 | 126.4 | 65.1 | 0 | 169.0 | 46.1 | 21.7 | 11.3 |
| 31 | Alice (HWW) | 124.4 | 63.8 | 0 | 160.3 | 35.2 | 0.0 | 13.1 |
| 39 | WA8023 | 123.9 | 63.8 | 0 | 170.0 | 42.1 | 0.0 | 11.2 |
| 20 | Norris (CL) | 123.0 | 65.4 | 0 | 167.0 | 42.0 | 41.7 | 12.6 |
| 7 | Tiber | 122.9 | 64.6 | 0 | 170.7 | 45.9 | 61.7 | 12.1 |
| 14 | NuSky (HWW) | 120.3 | 63.8 | 0 | 169.3 | 41.3 | 45.0 | 10.6 |
| 4 | Neeley | 119.4 | 64.1 | 0 | 170.0 | 40.7 | 61.7 | 11.3 |
| 41 | MTS0633 | 118.2 | 63.9 | 0 | 168.0 | 41.6 | 63.3 | 14.4 |
| 23 | Wendy (HWW) | 117.8 | 64.7 | 0 | 159.0 | 34.4 | 5.0 | 12.7 |
| 38 | AP 503 CL2 | 116.5 | 64.6 | 0 | 166.7 | 35.7 | 1.7 | 12.4 |

Table 1. Continued

| Planted: September 13, 2007 | | Field D3 | | | Harvested: August 12, 2008 | | | |
|-----------------------------|--------------|--------------|-------------|----------------|----------------------------|--------------|--------------|-------------|
| Entry | Cultivar | Yield | Test weight | Foliar disease | Heading date | Plant height | Lodging | Protein |
| | | bu/ac | lb/bu | % | Julian | in | % | % |
| 17 | Bynum (CL) | 115.5 | 65.2 | 0 | 163.3 | 41.5 | 36.7 | 13.7 |
| 12 | Vanguard | 112.3 | 64.2 | 0 | 167.7 | 42.9 | 70.0 | 14.8 |
| 42 | MT0641 | 111.3 | 65.0 | 0 | 164.0 | 38.5 | 28.3 | 11.3 |
| 44 | MT0688 | 110.5 | 63.7 | 0 | 167.7 | 39.6 | 63.3 | 11.6 |
| 13 | NuWest (HWW) | 109.7 | 64.3 | 0 | 169.7 | 42.9 | 78.3 | 11.8 |
| 48 | MTS0705 | 109.1 | 64.7 | 0 | 170.0 | 42.5 | 86.7 | 13.4 |
| 43 | MT0686 | 108.2 | 64.0 | 0 | 168.0 | 44.5 | 65.0 | 12.1 |
| 32 | Darrell | 107.0 | 64.0 | 0 | 162.7 | 37.7 | 11.7 | 13.7 |
| 40 | MTS0608 | 105.8 | 63.7 | 0 | 166.3 | 40.3 | 88.3 | 14.0 |
| 15 | Jerry | 105.7 | 63.1 | 0 | 168.0 | 42.0 | 78.3 | 13.8 |
| 9 | Rocky | 102.2 | 64.5 | 0 | 167.7 | 42.9 | 88.3 | 12.2 |
| 3 | Rampart | 101.5 | 63.9 | 0 | 168.0 | 41.6 | 76.7 | 14.1 |
| Mean | | 127.2 | 64.5 | 0 | 166.2 | 39.5 | 30.1 | 12.2 |
| C.V. (%) | | 6.13 | | 0 | 0.52 | 3.48 | 54.61 | |
| LSD (0.05) | | 12.63 | | NS | 1.40 | 2.23 | 26.69 | |