

PROJECT TITLE: Agronomic Performance Evaluation of Intrastate Winter Wheat Cultivars

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OBJECTIVES:

To evaluate new and existing winter wheat cultivars for agronomic performance and disease resistance in environments and cropping systems representative of northwestern Montana.

RESULTS:

Pythium appeared several weeks after winter dormancy had broken and developed aggressively. The symptoms were a severe yellowing of the plants and general lackluster appearances. A 1-3 rating scale with 3 being severe was used to quantify differences. All plots had considerable injury. Winter wheat yields ranged from a low of less than 60 bu/acre for Rampart and Morgan to highs exceeding 80 bu/acre for MT 9951, Blizzard, MTR 9997, Utah 100, Tiber, MT 9904, and MT 9982 (Table 1). All test weights were excellent with several weights exceeding 63 lbs/bu. Julian heading dates ranged from 150 days for Halt to 164 days for Norstar with a mean heading date of 157 days. Plant height ranged from 20.5 inches for Halt and NuHorizon to 38.3 inches from Norstar. Plant heights were less than previous years and there was no lodging in the trial. The nursery was planted on September 25, 2000 and harvested on August 16, 2001.

SUMMARY:

Despite limited precipitation during head filling, reserve subsoil moisture permitted good yields and test weights. Although most yields were good, several varieties exhibited superior yield performance and agronomic traits that may make them favorable choices for planting in northwestern Montana.

FUTURE PLANS:

Continue winter wheat evaluations for the purpose of identifying those cultivars best suited for production in District 1.

Table 1. Agronomic data from the Intrastate Winter Wheat Nursery grown at the Northwestern Agricultural Research Center Kalispell, MT.

| Cultivar     | Yield | Test Wt | Heading Date | Height | Disease Score | Winter Survival | Protein |
|--------------|-------|---------|--------------|--------|---------------|-----------------|---------|
|              | Bu/A  | Lbs/Bu  | Julian       | Inches | 1-3           | %               | %       |
| MT9951       | 89.4  | 62.3    | 160          | 29.5   | 1.3           | 100             | 12.3    |
| BLIZZARD     | 88.0  | 62.4    | 159          | 27.1   | 1.3           | 99              | 13.5    |
| MTR9997      | 85.6  | 62.8    | 159          | 26.8   | 1.7           | 100             | 13.7    |
| UTAH 100     | 84.9  | 61.5    | 160          | 31.3   | 2.0           | 99              | 13.0    |
| TIBER        | 84.9  | 63.1    | 160          | 31.9   | 1.3           | 100             | 13.4    |
| MT9904       | 82.0  | 61.9    | 157          | 26.1   | 1.7           | 99              | 13.1    |
| MT9982       | 80.9  | 62.3    | 160          | 26.9   | 1.0           | 99              | 12.7    |
| MT9989       | 79.2  | 60.8    | 159          | 28.2   | 1.0           | 100             | 12.4    |
| ELKHORN      | 78.7  | 62.1    | 161          | 33.7   | 2.0           | 98              | 13.1    |
| BZ96-919     | 77.5  | 62.6    | 161          | 22.5   | 2.0           | 100             | 12.7    |
| NORSTAR      | 77.1  | 62.8    | 164          | 38.3   | 2.0           | 100             | 12.7    |
| GOLDEN SPIKE | 76.9  | 62.3    | 161          | 28.5   | 1.7           | 97              | 12.3    |
| JUDITH       | 76.6  | 60.8    | 158          | 26.9   | 1.3           | 98              | 12.8    |
| MT9513       | 76.5  | 61.6    | 160          | 26.7   | 2.0           | 100             | 13.4    |
| HARDING      | 75.3  | 61.7    | 158          | 26.1   | 2.0           | 99              | 13.4    |
| BZ96-895     | 75.2  | 63.4    | 155          | 25.3   | 1.7           | 100             | 13.0    |
| NEELEY       | 75.0  | 61.2    | 161          | 29.2   | 2.5           | 100             | 11.8    |
| NUSKY        | 75.0  | 62.2    | 159          | 26.9   | 2.0           | 100             | 13.3    |
| NUPLAINS     | 74.7  | 63.8    | 155          | 23.1   | 1.7           | 99              | 13.3    |
| BZ97-761     | 74.5  | 62.1    | 158          | 27.5   | 1.3           | 100             | 13.1    |
| MT9949       | 74.3  | 61.4    | 158          | 28.7   | 1.7           | 100             | 13.1    |
| BIGHORN      | 73.9  | 62.8    | 160          | 23.3   | 1.7           | 99              | 13.4    |
| N95L1229     | 73.6  | 61.9    | 157          | 23.7   | 1.7           | 99              | 13.2    |
| BIG SKY      | 73.2  | 63.3    | 159          | 28.2   | 2.0           | 99              | 13.7    |
| PROMONTORY   | 71.8  | 63.9    | 156          | 26.9   | 1.3           | 99              | 13.2    |
| GARY         | 71.7  | 62.2    | 158          | 27.4   | 1.7           | 100             | 12.2    |
| NUWEST       | 71.5  | 62.3    | 159          | 27.0   | 1.7           | 100             | 13.1    |
| MT9929       | 71.4  | 62.6    | 158          | 24.8   | 1.7           | 100             | 13.6    |
| MANNING      | 71.4  | 62.4    | 155          | 26.9   | 2.5           | 99              | 13.1    |
| ERHARDT      | 71.2  | 63.0    | 157          | 25.2   | 1.5           | 100             | 14.0    |
| WINDSTAR     | 70.2  | 61.8    | 156          | 27.2   | 2.0           | 100             | 13.2    |
| DW RED       | 69.6  | 62.6    | 156          | 26.0   | 2.0           | 100             | 13.1    |
| MTW9911      | 69.6  | 61.1    | 156          | 25.2   | 2.0           | 100             | 13.3    |
| ROCKY        | 69.5  | 63.2    | 156          | 26.1   | 1.7           | 100             | 13.0    |
| NUFRONTEIR   | 69.2  | 62.9    | 153          | 24.4   | 2.3           | 99              | 11.7    |
| MT9909       | 68.9  | 61.5    | 158          | 24.8   | 1.7           | 100             | 13.4    |
| PROWERS 99   | 68.5  | 63.6    | 156          | 25.6   | 2.0           | 100             | 13.3    |
| HALT         | 67.9  | 61.7    | 150          | 20.5   | 1.0           | 100             | 13.4    |
| QUANTU 542   | 67.8  | 62.8    | 154          | 27.9   | 1.3           | 100             | 14.2    |
| MT9426       | 66.8  | 62.0    | 160          | 23.7   | 1.3           | 100             | 13.0    |
| MT99116      | 66.5  | 61.7    | 157          | 24.4   | 2.0           | 100             | 12.9    |
| VANGUARD     | 66.4  | 62.0    | 154          | 27.9   | 1.7           | 100             | 14.5    |
| MCGUIRE      | 65.4  | 61.9    | 153          | 24.5   | 1.7           | 100             | 14.4    |

Continued

Table 1 continued. Agronomic data from the Intrastate Winter Wheat Nursery grown at the Northwestern Agricultural Research Center Kalispell, MT.

| Cultivar           | Yield   | Test Wt | Heading Date | Height  | Disease Score | Winter Survival | Protein |
|--------------------|---------|---------|--------------|---------|---------------|-----------------|---------|
|                    | Bu/A    | Lbs/Bu  | Julian       | Inches  | 1-3           | %               | %       |
| CULVER             | 65.3    | 61.6    | 152          | 25.1    | 1.3           | 100             | 13.8    |
| CDC FALCON         | 62.5    | 60.8    | 157          | 21.7    | 1.3           | 100             | 13.0    |
| RANSOM             | 61.1    | 61.7    | 158          | 26.0    | 2.0           | 100             | 13.3    |
| NUHORIZON          | 60.0    | 62.9    | 152          | 20.5    | 2.0           | 100             | 12.9    |
| RAMPART            | 59.8    | 61.6    | 155          | 26.4    | 1.0           | 100             | 14.2    |
| MORGAN             | 59.6    | 61.8    | 162          | 25.8    | 2.0           | 99              | 13.4    |
| Mean               | 72.8    | 62.2    | 157          | 26.5    | 1.7           | 99              | 13.1    |
| Effic. Rel. RCBD   | 116.8   | 127.2   | 101.5        | 115.4   | 99.1          |                 |         |
| LSD p=0.05         | 8.82    | 0.33    | 2.15         | 2.13    | 0.74          | NS              |         |
| LSD p=0.01         | 11.69   | 0.44    | 2.84         | 2.82    | 0.98          | NS              |         |
| C.V.               | 8       | 1       | 1            | 5       | 28            | 1               |         |
| Replicate Prob (F) | <0.0001 | <0.0001 | 0.0002       | <0.0001 | <0.0001       | 0.3975          |         |
| Treatment Prob (F) | <0.0001 | <0.0001 | <0.0001      | <0.0001 | 0.0546        | 0.5334          |         |