

PROJECT TITLE: Evaluations of advanced yield winter wheat nursery cultivars for disease resistance.

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OBJECTIVES:

To evaluate predominately Montana experimental cultivars for yield, lodging, quality, and disease resistance. Focal points of disease identification and documentation include stripe and leaf rust and tan spot reactions, which are common production concerns in northwest Montana.

RESULTS:

Poor emergence and light winterkill resulted in plant populations averaging 89 percent stand survival. However, a cool and dry extended spring resulted in extensive tillering with moderate disease pressure (tan spot). Conditions throughout grain fill were hot and dry with ample soil moisture present, resulting in light lodging pressure and an absence of foliar diseases. Yields were exceptional ranging from 124 to 166 bu/A with a 36 entry mean of 147 bu/A. Test weights and proteins were average for this location at 60.2 lbs/bu and 11.7 percent respectively.

SUMMARY:

While not conducive to disease inoculation and infestation, climatic conditions were ideal for genetic yield expression in all cultivars. A 42 bu/A difference existed between the highest (MT9712) and lowest (MTS9873) yielding cultivars. Progress is apparent in the effort to create and identify cultivars superior to those currently recommended for production.

FUTURE PLANS:

Experimental winter wheat cultivars will continue to be evaluated at Kalispell to identify those with high yielding and disease resistance genetics for production in this region as well as across the state.

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

Planted: September 24, 1998

Harvested: August 20, 1999

| VARIETY | Yld Bu/A | Stand % | Test Wt Lb/Bu | Moist % | Hd Date Julian | Height Inch | Lodge 0-9 | TanSpot 0-3 | Protein % |
|-----------|-------------|------------|------------------|------------|-------------------|----------------|--------------|----------------|--------------|
| MT9712 | 166.32 | 89.41 | 59.04 | 16.72 | 154.66 | 39.00 | 2.05 | 2.36 | 11.20 |
| MTR98151 | 166.02 | 81.83 | 61.05 | 16.93 | 160.23 | 39.39 | .28 | 1.35 | 11.10 |
| MT98110 | 162.97 | 89.94 | 59.44 | 17.94 | 157.27 | 38.60 | 1.37 | 1.51 | 11.00 |
| MT98128 | 161.81 | 92.24 | 59.90 | 17.59 | 156.57 | 37.78 | 1.01 | 1.81 | 10.60 |
| NEELEY | 159.16 | 85.87 | 61.34 | 17.27 | 162.04 | 39.96 | .76 | .92 | 11.30 |
| MTR98140 | 159.07 | 88.11 | 59.51 | 17.53 | 157.05 | 38.52 | .32 | 2.68 | 10.90 |
| MTR98148 | 158.90 | 91.55 | 60.63 | 17.13 | 161.52 | 40.90 | 1.66 | 2.67 | 11.80 |
| MT98121 | 156.18 | 88.03 | 60.32 | 18.05 | 162.53 | 39.60 | 1.05 | 1.59 | 10.90 |
| MT9857 | 154.40 | 89.89 | 61.09 | 17.83 | 162.35 | 36.99 | .63 | 1.02 | 11.90 |
| MT98133 | 153.96 | 85.17 | 60.44 | 17.03 | 162.14 | 35.55 | .04 | 1.11 | 11.30 |
| JUDITH | 152.66 | 88.25 | 59.26 | 17.26 | 154.41 | 38.86 | 1.32 | 2.65 | 11.20 |
| MT9834 | 152.12 | 88.30 | 60.02 | 16.87 | 156.71 | 41.78 | .60 | 1.35 | 11.60 |
| MT9801 | 151.94 | 92.12 | 60.72 | 17.56 | 161.35 | 38.94 | 1.31 | 1.22 | 11.50 |
| MTS9882 | 151.91 | 87.82 | 60.17 | 16.23 | 159.97 | 33.79 | .66 | 2.06 | 11.00 |
| MT98120 | 150.51 | 88.57 | 60.11 | 16.93 | 162.00 | 36.51 | .72 | 1.89 | 10.80 |
| Morgan | 150.12 | 90.61 | 59.96 | 17.04 | 162.84 | 38.96 | 1.68 | 1.54 | 11.40 |
| MT9805 | 149.28 | 91.90 | 60.35 | 16.65 | 159.34 | 40.88 | .31 | 1.60 | 12.30 |
| MT9844 | 147.99 | 86.49 | 60.85 | 17.94 | 155.84 | 39.20 | .92 | 2.14 | 11.30 |
| MT98122 | 146.84 | 88.73 | 60.12 | 18.31 | 159.67 | 38.23 | .66 | 2.03 | 11.50 |
| MT98113 | 146.70 | 85.11 | 60.94 | 18.20 | 159.29 | 36.46 | .34 | 2.29 | 11.70 |
| MT9822 | 146.41 | 90.37 | 60.49 | 16.26 | 152.99 | 40.27 | .97 | 2.00 | 10.90 |
| MT9802 | 146.24 | 89.27 | 60.50 | 18.37 | 161.85 | 37.78 | .66 | 1.02 | 11.90 |
| ERHARDT | 146.04 | 88.07 | 61.93 | 17.47 | 158.47 | 37.42 | .66 | 2.16 | 12.40 |
| MT9811 | 145.95 | 90.03 | 60.57 | 18.18 | 159.80 | 39.48 | 3.66 | 1.48 | 11.20 |
| MT9710 | 145.51 | 90.01 | 60.59 | 18.16 | 161.34 | 39.13 | 1.00 | 1.35 | 11.60 |
| MT9859 | 145.14 | 91.01 | 62.19 | 18.51 | 162.48 | 37.96 | .39 | 1.30 | 12.50 |
| MT98127 | 144.32 | 82.63 | 61.12 | 18.24 | 157.60 | 36.44 | 2.02 | 3.03 | 11.50 |
| MTS9860 | 141.98 | 87.73 | 59.04 | 15.40 | 163.60 | 40.88 | 1.43 | .95 | 11.60 |
| MT9833 | 140.06 | 91.83 | 60.27 | 17.41 | 157.63 | 42.95 | .00 | 1.81 | 12.10 |
| MTS9868 | 133.24 | 89.88 | 59.09 | 14.70 | 163.83 | 40.21 | 2.28 | .78 | 12.60 |
| MTS9871 | 132.52 | 93.15 | 59.79 | 17.02 | 156.20 | 34.38 | .24 | 1.70 | 11.40 |
| MTS9864 | 131.63 | 88.09 | 59.36 | 14.79 | 158.03 | 38.27 | 2.25 | 1.56 | 12.70 |
| RAMPART | 128.90 | 87.85 | 60.04 | 16.17 | 157.75 | 39.47 | 1.70 | 1.03 | 12.50 |
| MTS9862 | 127.79 | 81.53 | 59.54 | 13.68 | 156.89 | 38.81 | .07 | 1.65 | 14.10 |
| MTS9869 | 126.41 | 89.47 | 59.12 | 14.86 | 162.97 | 42.42 | 2.64 | .71 | 12.50 |
| MTS9873 | 124.45 | 88.11 | 59.55 | 15.78 | 157.48 | 38.13 | 1.05 | 1.68 | 13.00 |
| Mean | 147.40 | 88.60 | 60.20 | 17.00 | 159.40 | 38.70 | 1.10 | 1.70 | 11.70 |
| C.V. | 3.70 | 4.17 | 0.68 | 4.44 | 0.57 | 2.55 | 73.4 | 23.3 | |
| LSD (.05) | 9.75 | 6.22 | 0.69 | 1.24 | 1.61 | 1.76 | 1.32 | 0.68 | |