Project Title: Intrastate Barley Evaluation

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

Results:

The 2008 planting season was delayed due to weather conditions that were wetter and cooler than normal. By the May 8 planting date, only 114 GDDs (base $40^0$ F) had accumulated as compared to 317 GDDs on the same date in 2007. Cool temperatures persisted throughout much of the growing season, which delayed plant development. The average heading date (Julian days) for the nursery was 189 as compared to 176 during 2007. Although cool temperatures may have delayed heading, this same set of conditions appeared to have suppressed foliar diseases and extended the grain filling period, benefiting yields in the process. Yields averaged 134 bu/A compared to 78 bu/A during the previous year. Yields ranged from a high of 174 bu/A for Goldeneye to a low of 71 bu/A for MT061246. Although MT061246 produced the lowest yields, the protein levels were the highest in the nursery - 16.5%. In contrast, MT061011 and MT061025 had the lowest protein (11.4%). Overall protein concentrations were less in 2008 compared to 2007, with mean protein percentages of 13.7 and 15.6, respectively. Test weights were higher than normal and averaged 52 lb/bu as compared to 50 lb/bu in 2007. Plant height was normal and averaged 32 inches, with Craft being the tallest entry at 36 inches. No lodging was detected.

Summary:

Below normal temperatures delayed plant development and prolonged the grain filling period which enhanced yields and test weights. Goldeneye appears to have promise for this area of Montana.

Future Plans:

Continue barley evaluations for the purpose of identifying cultivars which are best suited for District 1.

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

Planted: May 8, 2008 Field Y7 Harvested: August 29, 2008

| Entry | Cultivar | Yield | Test weight | Grain Moist. | Heading | Plant height | Plump | Protein |
|---|---|---|---|---|---|---|---|---|
| | | bu/ac | lb/bu | % | Julian | in | % | % |
| 6 | GOLDENEYE | 173.9 | 48.7 | 14.4 | 187.0 | 32.5 | 92.4 | 14.4 |
| 59 | MT061240 | 152.2 | 52.0 | 14.0 | 189.3 | 33.4 | 93.1 | 14.2 |
| 35 | MT050062 | 152.1 | 53.0 | 14.7 | 189.3 | 35.3 | 97.1 | 12.7 |
| 33 | MT050049 | 151.7 | 54.8 | 15.6 | 188.0 | 33.7 | 97.5 | 12.8 |
| 22 | MT040024 | 151.0 | 52.6 | 14.2 | 188.3 | 28.9 | 95.5 | 13.0 |
| 30 | MT050030 | 149.0 | 52.7 | 15.4 | 189.0 | 32.6 | 99.3 | 12.9 |
| 1 | Aquila | 148.5 | 50.0 | 14.1 | 187.7 | 33.6 | 95.6 | 13.7 |
| 29 | MT040226 | 147.3 | 54.3 | 13.7 | 188.0 | 34.2 | 92.5 | 13.8 |
| 31 | MT050035 | 147.0 | 53.0 | 14.5 | 190.7 | 33.9 | 99.3 | 13.4 |
| 27 | MT040209 | 146.0 | 52.2 | 18.1 | 190.0 | 30.8 | 94.2 | 13.0 |
| 50 | MT061058 | 145.7 | 53.4 | 16.2 | 189.0 | 35.0 | 97.9 | 13.7 |
| 47 | MT061051 | 145.5 | 51.8 | 13.9 | 190.7 | 32.3 | 96.5 | 14.5 |
| 23 | MT040073 | 144.9 | 53.9 | 14.5 | 189.3 | 32.4 | 95.6 | 14.1 |
| 4 | Champion | 144.8 | 52.4 | 14.5 | 188.7 | 35.0 | 96.5 | 14.5 |
| 34 | MT050050 | 144.8 | 53.3 | 14.3 | 187.7 | 32.9 | 96.7 | 13.8 |
| 52 | MT061104 | 144.4 | 52.0 | 14.5 | 189.7 | 33.4 | 97.7 | 14.3 |
| 18 | MT030063 | 144.2 | 53.9 | 15.0 | 190.3 | 35.4 | 99.2 | 13.0 |
| 21 | MT040013 | 143.6 | 53.4 | 15.2 | 189.7 | 33.1 | 97.9 | 12.8 |
| 26 | MT040204 | 142.3 | 52.1 | 15.2 | 192.0 | 31.8 | 97.1 | 12.7 |
| 17 | MT030042 | 141.4 | 53.8 | 15.4 | 189.7 | 29.9 | 96.4 | 12.2 |
| 19 | MT030079 | 141.3 | 53.0 | 14.1 | 188.7 | 33.0 | 91.6 | 14.7 |
| 5 | Conrad | 141.3 | 52.8 | 14.7 | 190.3 | 31.0 | 92.0 | 13.3 |
| 32 | MT050048 | 141.1 | 53.2 | 15.0 | 189.0 | 34.7 | 98.3 | 14.3 |
| 62 | Tradition | 141.1 | 51.5 | 14.1 | 187.7 | 34.7 | 98.7 | 13.5 |
| 9 | Eslick | 139.4 | 51.1 | 16.0 | 189.7 | 28.6 | 89.9 | 12.8 |
| 42 | MT061035 | 139.0 | 51.7 | 14.2 | 190.7 | 30.2 | 96.1 | 14.8 |
| 8 | Geraldine | 138.3 | 51.9 | 15.3 | 191.3 | 30.8 | 93.6 | 13.7 |
| 20 | MT030137 | 137.4 | 53.0 | 14.6 | 188.3 | 29.7 | 97.9 | 13.8 |
| 55 | MT061169 | 136.2 | 52.8 | 14.7 | 190.0 | 31.7 | 96.2 | 15.1 |
| 15 | MT020162 | 135.6 | 52.6 | 15.4 | 189.7 | 33.9 | 97.5 | 14.1 |
| 57 | MT061207 | 134.9 | 53.1 | 14.2 | 187.3 | 33.1 | 97.7 | 13.7 |
| 40 | MT061032 | 134.8 | 52.4 | 14.6 | 190.7 | 31.2 | 98.7 | 13.3 |
| 64 | 2B992657 | 133.8 | 47.1 | 14.7 | 191.0 | 33.2 | 85.7 | 14.6 |
| 7 | Haxby | 133.1 | 53.7 | 14.4 | 187.7 | 32.1 | 91.7 | 14.0 |
| 63 | 2B992316 | 132.9 | 52.8 | 14.5 | 189.0 | 32.4 | 93.8 | 12.0 |

Table 1. Continued

Planted: May 8, 2008 Field Y7 Harvested: August 29, 2008

| Entry | Cultivar | Yield | Test weight | Grain Moist. | Heading | Plant height | Plump | Protein |
|---|---|---|---|---|---|---|---|---|
| | | bu/ac | lb/bu | % | Julian | in | % | % |
| 43 | MT061042 | 131.6 | 52.5 | 14.8 | 190.3 | 32.4 | 99.0 | 13.8 |
| 10 | Craft | 131.2 | 54.1 | 15.2 | 187.7 | 36.3 | 98.4 | 13.9 |
| 49 | MT061054 | 131.0 | 52.8 | 15.3 | 190.3 | 30.9 | 98.9 | 13.5 |
| 46 | MT061048 | 131.0 | 51.8 | 13.7 | 189.7 | 30.1 | 95.9 | 14.2 |
| 12 | MT010158 | 130.9 | 52.3 | 13.6 | 188.3 | 32.1 | 95.3 | 15.0 |
| 3 | Boulder | 130.9 | 52.5 | 14.8 | 190.0 | 30.0 | 97.4 | 15.1 |
| 61 | MT061248 | 130.3 | 53.3 | 14.5 | 189.3 | 30.5 | 98.8 | 14.7 |
| 36 | MT050201 | 129.3 | 52.1 | 14.7 | 186.7 | 35.9 | 94.1 | 14.9 |
| 38 | MT061025 | 128.8 | 48.0 | 15.0 | 187.3 | 29.2 | 97.9 | 11.4 |
| 41 | MT061034 | 128.4 | 52.3 | 14.9 | 191.3 | 30.1 | 98.1 | 14.1 |
| 2 | Baronesse | 127.4 | 52.8 | 16.2 | 189.3 | 31.1 | 98.1 | 12.9 |
| 45 | MT061047 | 127.3 | 53.0 | 14.9 | 190.0 | 32.7 | 99.2 | 13.7 |
| 44 | MT061045 | 127.1 | 53.0 | 14.6 | 190.3 | 31.3 | 98.8 | 13.4 |
| 48 | MT061052 | 126.8 | 52.4 | 14.2 | 190.3 | 29.9 | 97.9 | 13.8 |
| 13 | MT010160 | 126.7 | 52.8 | 13.7 | 189.0 | 34.6 | 91.4 | 13.5 |
| 25 | MT040181 | 125.6 | 52.9 | 14.6 | 190.0 | 30.9 | 94.2 | 13.6 |
| 53 | MT061134 | 125.3 | 51.7 | 15.0 | 190.7 | 33.8 | 97.6 | 14.0 |
| 37 | MT061011 | 124.5 | 48.6 | 13.7 | 187.0 | 27.3 | 97.0 | 11.4 |
| 24 | MT040130 | 123.8 | 53.5 | 15.2 | 192.0 | 30.8 | 98.8 | 14.0 |
| 11 | Hockett | 123.0 | 54.1 | 15.3 | 188.3 | 31.0 | 93.7 | 13.6 |
| 28 | MT040216 | 122.9 | 54.1 | 14.7 | 189.7 | 31.5 | 96.4 | 13.2 |
| 14 | MT020155 | 121.2 | 52.0 | 14.5 | 187.0 | 32.1 | 97.8 | 14.1 |
| 54 | MT061160 | 121.0 | 53.0 | 14.4 | 189.7 | 32.7 | 97.1 | 14.5 |
| 16 | MT020204 | 120.9 | 52.8 | 14.4 | 189.0 | 31.5 | 97.1 | 15.1 |
| 39 | MT061026 | 119.3 | 48.3 | 14.1 | 187.3 | 27.5 | 97.9 | 11.8 |
| 58 | MT061225 | 119.3 | 53.8 | 15.1 | 187.7 | 31.6 | 98.8 | 13.1 |
| 51 | MT061100 | 118.9 | 51.7 | 14.3 | 190.7 | 28.8 | 97.3 | 14.0 |
| 56 | MT061201 | 112.7 | 53.0 | 14.5 | 188.0 | 33.4 | 98.1 | 14.2 |
| 60 | MT061246 | 71.5 | 52.5 | 14.6 | 188.3 | 32.1 | 99.5 | 16.5 |
| | **Mean** | **134.5** | **52.4** | **14.7** | **189.2** | **32.1** | **96.4** | **13.7** |
| | **C.V. (%)** | **9.36** | | | **0.52** | **5.36** | | |
| | **LSD (0.05)** | **14.95** | | | **1.55** | **2.20** | | |