

Project Title: Evaluation of Intrastate Barley Cultivars - 2011

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

Materials and Methods:

The previous crop was alfalfa and the field was fertilized with 150-30-120-24 lb/A of N-P-K-S, respectively, on April 27. The soil type was a Creston silt loam (25-50-25) with an organic matter content of 4% and a pH of 7.5. Treatments were seeded 1.5 inches deep on May 6. Individual plots consisted of seven, 6-in wide rows, 15 feet in length with each variety replicated 3 times in a randomized complete block design. Wolverine was applied at 1.7 pt/A on May 25 for weed control. The study was harvested September 28. Grain yield, protein, test weight and percent plump were then determined.

The average Julian heading date for the nursery was 190 (July 8). Yields averaged 110 bu/A which is below long term averages. Yields ranged from a high of 127 bu/A for MT090182 to a low of 55 bu/A for Karma. Proteins averaged 14.1 % and ranged from a low of 12.3 for MT070175 to a high of 16.7 for Karma. Test weights were good, averaging 51.8 lb/bu and ranging from a low of 49.2 for Tradition to a high of 54.3 for Karma. Plant height averaged 35 inches, with Pinnacle being the tallest entry at 40 inches and MT070086 the shortest at 27 inches. Lodging occurred in most entries and averaged 30% for the nursery. EM090081 had the worst lodging (61%), while MT070161, MT080081, and Amsterdam had 0% lodging. Percent plumps were good and averaged 91 percent. MT030042 had the lowest plump value at 74% while MT070086 had the highest value (97.7%).

Summary:

Champion, Conrad, and Amsterdam were the highest yielding commercial varieties. Lodging continues to be a serious production problem in barley.

Table 1. Agronomic data from the intrastate barley nursery grown at Kalispell, MT during 2011.
 Planted: May 6, 2011 Harvested: September 28, 2011

| Cultivar | Yield (bu/A) | Protein (%) | Test wt. (lb/bu) | Plump (%) | Heading (Julian) | Height (inches) | Lodging (%) |
|-----------|-----------------|----------------|---------------------|--------------|---------------------|--------------------|----------------|
| MT090182 | 127.2 | 12.8 | 52.5 | 93.4 | 190.3 | 37.3 | 44.3 |
| MT090229 | 126.9 | 13.1 | 52.3 | 94.4 | 186.7 | 36.9 | 24.3 |
| MT070111 | 123.7 | 15.0 | 52.4 | 92.8 | 191.7 | 39.0 | 57.7 |
| Champion | 122.5 | 14.1 | 51.8 | 88.0 | 187.7 | 37.9 | 46.0 |
| MT090186 | 122.4 | 12.9 | 51.8 | 92.8 | 191.3 | 37.7 | 30.7 |
| MT090193 | 122.4 | 13.8 | 51.7 | 92.3 | 191.3 | 38.8 | 32.3 |
| Conrad | 122.2 | 15.8 | 51.6 | 88.1 | 190.3 | 33.6 | 36.7 |
| MT080279 | 121.9 | 13.9 | 53.4 | 94.3 | 186.0 | 34.4 | 18.0 |
| MT090190 | 121.5 | 13.1 | 52.4 | 92.9 | 189.7 | 38.8 | 31.3 |
| MT070125 | 120.7 | 14.4 | 53.9 | 94.4 | 191.0 | 37.7 | 16.7 |
| MT080285 | 120.6 | 14.2 | 52.3 | 94.8 | 187.3 | 32.4 | 9.3 |
| MT020162 | 120.3 | 14.2 | 51.5 | 91.9 | 191.3 | 36.2 | 16.0 |
| MT090184 | 119.2 | 12.8 | 51.8 | 92.0 | 191.3 | 36.6 | 16.7 |
| MT090169 | 119.0 | 12.9 | 50.7 | 89.3 | 187.3 | 36.0 | 31.0 |
| MT090188 | 118.7 | 12.7 | 52.5 | 94.4 | 191.7 | 38.3 | 29.3 |
| Amsterdam | 118.5 | 14.0 | 53.4 | 93.0 | 190.0 | 36.5 | 0.0 |
| MT090178 | 117.2 | 13.4 | 52.5 | 91.9 | 190.3 | 35.8 | 22.7 |
| MT090180 | 116.1 | 13.2 | 50.5 | 85.2 | 191.0 | 38.6 | 38.3 |
| MT070159 | 116.0 | 13.6 | 50.2 | 97.3 | 186.0 | 30.1 | 6.7 |
| MT080081 | 115.0 | 14.5 | 53.3 | 96.4 | 192.7 | 33.7 | 0.0 |
| MT090227 | 114.8 | 12.4 | 53.3 | 97.0 | 188.7 | 39.4 | 13.0 |
| EM090128 | 114.5 | 15.7 | 51.6 | 83.3 | 192.7 | 31.1 | 26.7 |
| MT070158 | 114.5 | 13.7 | 53.0 | 95.7 | 187.0 | 32.0 | 16.7 |
| MT080083 | 113.5 | 14.8 | 52.9 | 96.1 | 192.7 | 34.1 | 5.7 |
| MT030042 | 113.2 | 14.2 | 50.9 | 74.3 | 189.0 | 32.5 | 38.3 |
| MT090202 | 113.0 | 12.7 | 52.7 | 93.7 | 188.7 | 39.0 | 12.0 |
| MT070175 | 112.8 | 12.3 | 52.8 | 95.1 | 189.0 | 35.6 | 22.7 |
| Scarlett | 112.0 | 14.7 | 50.2 | 86.4 | 192.0 | 33.1 | 30.0 |
| MT090176 | 111.2 | 12.8 | 50.7 | 88.2 | 192.0 | 37.9 | 40.0 |
| MT090181 | 111.0 | 13.3 | 52.1 | 94.9 | 191.0 | 36.9 | 38.3 |
| Copeland | 110.9 | 13.6 | 51.3 | 85.8 | 194.3 | 38.8 | 21.7 |
| EM090105 | 110.6 | 15.4 | 49.9 | 87.8 | 189.7 | 34.5 | 53.7 |
| MT080085 | 110.2 | 15.4 | 51.2 | 85.1 | 193.0 | 37.8 | 46.0 |
| MT061035 | 109.7 | 13.6 | 50.4 | 92.9 | 192.7 | 29.1 | 31.0 |
| MT090192 | 109.7 | 13.1 | 52.5 | 89.9 | 191.0 | 37.9 | 36.7 |
| Hockett | 108.6 | 14.4 | 53.6 | 95.6 | 186.3 | 34.6 | 36.7 |
| MT061104 | 108.2 | 14.4 | 51.6 | 93.8 | 187.7 | 37.8 | 25.3 |
| MT010160 | 108.0 | 14.9 | 51.8 | 92.1 | 189.7 | 36.2 | 21.0 |
| MT080261 | 107.7 | 13.9 | 51.1 | 92.4 | 186.7 | 33.3 | 4.3 |
| Geraldine | 107.7 | 15.2 | 51.0 | 85.8 | 191.7 | 36.1 | 54.3 |

Table 1. (continued)

| Cultivar | Yield (bu/A) | Protein (%) | Test wt. (lb/bu) | Plump (%) | Heading (Julian) | Height (inches) | Lodging (%) |
|------------|-----------------|----------------|---------------------|--------------|---------------------|--------------------|----------------|
| MT080281 | 107.2 | 13.6 | 51.8 | 93.5 | 187.0 | 31.0 | 19.3 |
| EM090117 | 107.1 | 15.2 | 49.5 | 86.0 | 197.0 | 34.8 | 17.7 |
| MT061169 | 106.9 | 15.1 | 52.8 | 96.0 | 191.7 | 34.4 | 46.0 |
| Metcalfe | 106.7 | 15.2 | 50.0 | 85.2 | 192.3 | 37.4 | 42.0 |
| Harrington | 106.6 | 15.5 | 50.6 | 85.1 | 191.3 | 36.1 | 45.0 |
| MT070136 | 105.9 | 15.1 | 51.2 | 89.9 | 192.3 | 37.1 | 41.0 |
| MT080243 | 105.7 | 15.1 | 50.3 | 81.3 | 191.3 | 35.6 | 53.3 |
| MT070148 | 105.2 | 15.0 | 51.2 | 92.7 | 186.7 | 37.1 | 50.0 |
| MT090183 | 104.3 | 13.1 | 51.8 | 93.9 | 190.7 | 37.7 | 30.0 |
| Pinnacle | 104.2 | 12.4 | 51.8 | 96.0 | 188.0 | 39.9 | 27.3 |
| Baronesse | 102.9 | 14.8 | 51.8 | 92.3 | 192.3 | 34.8 | 22.7 |
| MT070161 | 102.8 | 13.2 | 53.9 | 95.8 | 187.3 | 29.7 | 0.0 |
| Haxby | 102.6 | 15.3 | 51.6 | 88.9 | 189.0 | 36.1 | 19.3 |
| MT070174 | 102.3 | 12.6 | 51.8 | 95.4 | 187.3 | 33.7 | 17.0 |
| MT090191 | 102.0 | 12.6 | 51.7 | 93.9 | 191.0 | 34.6 | 50.0 |
| MT090194 | 100.0 | 13.1 | 50.9 | 91.8 | 191.3 | 37.5 | 46.7 |
| MT061134 | 99.7 | 14.8 | 51.4 | 94.6 | 189.3 | 37.4 | 58.3 |
| MT061201 | 97.3 | 14.1 | 50.1 | 84.3 | 188.7 | 36.9 | 39.3 |
| MT020155 | 96.4 | 14.2 | 52.0 | 93.1 | 185.0 | 35.6 | 60.0 |
| Craft | 96.3 | 15.7 | 53.0 | 83.4 | 187.0 | 38.7 | 51.7 |
| MT070086 | 95.7 | 13.3 | 52.7 | 97.7 | 190.0 | 26.8 | 4.0 |
| Tradition | 94.1 | 15.5 | 49.2 | 81.9 | 189.0 | 35.6 | 33.3 |
| EM090081 | 90.4 | 16.0 | 53.0 | 93.2 | 194.0 | 36.7 | 61.0 |
| Karma | 55.5 | 16.7 | 54.3 | 91.0 | 190.0 | 32.2 | 37.7 |
| MIN | 55.5 | 12.3 | 49.2 | 74.3 | 185.0 | 26.8 | 0.0 |
| MAX | 122.2 | 16.7 | 54.3 | 97.7 | 197.0 | 39.9 | 61.0 |
| MEAN | 109.9 | 14.1 | 51.8 | 91.1 | 190.0 | 35.6 | 30.5 |
| LSD (0.05) | 20.2 | NA | NA | NA | 1.7 | 3.8 | 31.6 |
| CV | 11.4 | NA | NA | NA | 0.6 | 6.5 | 64.1 |
| TRT (pr>f) | 0.0001 | NA | NA | NA | 0.0001 | 0.0001 | 0.0002 |