**Section:** PREC

**Title:** 202~~4~~ Elite Malt Barley Trial Performance Evaluation

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**Introduction**

The University of Wyoming Powell Research and Extension Center (PREC) conducts a barley variety performance trial in cooperation with USDA-ARS as part of an ongoing research program.

**Objectives**

The purpose of this trial is to observe and evaluate the performance of different malt barley varieties under different growing conditions across the Pacific Northwest, Intermountain West, and Northern Great Plains regions, including northwest Wyoming. Barley yield and quality varies greatly across regions and varieties, so we want to observe each variety in multiple locations for the local companies and growers to be able to decide the varieties best suited for their needs. Data on grain yield, plant height, lodging, disease resistance, and protein concentration are some of the factors to be considered by farmers and industry professionals.

**Materials and Methods**

The experiment was located at PREC during 2024. Fertilizer was applied March 29 at the rates of 120 lb/ac of nitrogen (N), 70 lb/ac of Phosphorous (P), 20 lb/ac potassium (K), 50 lb/ac humic acid, 6 lb/ac zinc, 4 lb/ac manganese, and 1 lb/ac boron based on a February soil test. The experimental design was a randomized complete block with three replications. On April 6, 30 barley varieties (including 7 regional checks) were established in plots 7.3 feet by 15 feet set at a row spacing of 7 inches. The seeding rate was 100 pounds of seed per acre. Soil type was a Garland clay loam. Weeds were controlled by a post application of Husky® 13 oz/ac. on May 21. It was grown in irrigated soil using flood irrigation methods. Measurements included heading and maturity dates, height, lodging (0% = no lodging and 100 = complete lodging), grain yield, test weight, moisture, and kernel plumpness. Plots were harvested on Aug 13 using a Zurn research plot combine, and 400g sub-samples were saved from each plot for quality tests.

**Results and Discussion**

Results from 2024 are presented in Table 1. The highest yielding entry was19ARS176-1 at 212 bu/ac. Barley yields and quality across the Bighorn Basin in 2024 were among the highest observed in recent years and maybe ever. Entries in bold are regional checks.

**Acknowledgments**

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Table 1. Elite Malt Barley Trial Data from PREC (Powell, WY) in 2024.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Variety | DTM | Average Height | Lodging | Test Weight | Yield | Plump | Thins |
|   |   | (cm) | (%) | (lbs/Bu) | (Bu/acre) | (%) | (%) |
| 16ARS039-0 | 103 | 92 | 5 | 50 | 163 | 97.4 | 1.0 |
| 16ARS067-13 | 108 | 79 | 0 | 51 | 202 | 97.2 | 1.0 |
| 17ARS069-1 | 101 | 92 | 7 | 53 | 176 | 98.6 | 0.6 |
| 17ARS072-5 | 107 | 86 | 17 | 54 | 211 | 98.2 | 0.5 |
| 18ARS114-016 | 105 | 93 | 0 | 51 | 197 | 96.3 | 1.0 |
| 18ARS114-066 | 104 | 97 | 13 | 53 | 187 | 98.0 | 0.6 |
| 18ARS129-1 | 103 | 92 | 40 | 50 | 188 | 98.9 | 0.5 |
| 18ARS138-3 | 101 | 100 | 13 | 50 | 185 | 97.5 | 0.8 |
| 18ARS149-3 | 105 | 99 | 10 | 53 | 189 | 97.4 | 1.0 |
| 18ARS153-5 | 101 | 98 | 40 | 54 | 194 | 97.3 | 0.7 |
| 18ARS154-3 | 103 | 94 | 3 | 51 | 182 | 98.4 | 0.7 |
| 19ARS160-0 | 102 | 95 | 40 | 52 | 200 | 95.6 | 0.9 |
| 19ARS160-6 | 103 | 95 | 33 | 53 | 196 | 98.0 | 0.5 |
| 19ARS163-7 | 102 | 69 | 0 | 53 | 166 | 97.9 | 0.6 |
| 19ARS164-0 | 102 | 92 | 30 | 52 | 183 | 97.6 | 0.8 |
| 19ARS164-8 | 110 | 89 | 0 | 50 | 199 | 94.5 | 2.1 |
| 19ARS166-2 | 105 | 87 | 25 | 53 | 189 | 98.0 | 0.6 |
| 19ARS169-1 | 107 | 91 | 18 | 52 | 209 | 97.8 | 0.7 |
| 19ARS169-9 | 101 | 99 | 13 | 53 | 196 | 97.4 | 0.6 |
| 19ARS170-1 | 103 | 94 | 10 | 52 | 197 | 97.7 | 0.5 |
| 19ARS176-0 | 109 | 84 | 3 | 52 | 208 | 97.2 | 1.2 |
| 19ARS176-1 | 108 | 84 | 3 | 52 | 212 | 97.2 | 1.0 |
| 19ARS178-2 | 106 | 96 | 53 | 53 | 195 | 97.5 | 0.8 |
| **ABI Eagle1** | **104** | **90** | **0** | **52** | **195** | **97.7** | **0.8** |
| **ABI Voyager1** | **104** | **98** | **30** | **53** | **180** | **98.8** | **0.4** |
| **AC Metcalfe1** | **104** | **97** | **20** | **52** | **164** | **97.9** | **0.6** |
| **CDC Copeland1** | **107** | **97** | **47** | **52** | **176** | **98.2** | **0.6** |
| **M1791** | **108** | **75** | **7** | **49** | **189** | **98.0** | **0.7** |
| **M691** | **108** | **79** | **3** | **50** | **192** | **95.4** | **1.1** |
| **MERIT 571** | **108** | **95** | **20** | **50** | **190** | **95.4** | **0.9** |
|   |   |   |   |   |   |   |   |
| LSD (0.05) | 3.0 | 6.5 | 17.7 | 3.1 | 31.1 | 1.0 | 0.6 |
| Location Mean | 105 | 91 | 17 | 52 | 190 | 97.4 | 0.8 |
| Checks Mean | 106 | 90 | 18 | 51 | 184 | 97.3 | 0.7 |

*1**Entries in bold with superscript 1 are regional checks*

*2 Adjusted to 14.5% moisture*