

Washington Grain Commission
Wheat and Barley Research Annual Progress Reports and Final Reports

Project #: 4127-1605
Progress Report Year: *1 of 3*
Title: Evaluation of Barley Varieties
Researcher: Clark Neely
Cooperators: Aaron Esser, Robert Brueggeman

Executive summary: During 2019, leadership of the Variety Testing Program transitioned from Aaron Esser to Clark Neely who assumed responsibilities in August. Of the 12 spring barley variety trials planted, Endicott was the only data not distributed due to high unexplained variability within the trial. The trials included nine feed, six malt, two hulless food varieties, and seven experimental lines. Four private companies and two land grant breeding programs entered material into the trial. Persistent spring rains delayed spring plantings and rainfall in August/September further delayed harvest. All 2019 variety trial data was uploaded by December on to the WSU Small Grains website (<http://smallgrains.wsu.edu>). The final report with additional information is being finalized for the official 2019 booklet and should be completed by mid-January 2020. In addition to our website and final technical report, variety performance information is delivered to barley growers and other clientele through field tours, grower meetings, emails with preliminary results after harvest (over 200 recipients), Wheat Life article, WSCIA seed buying guide, direct contact with clientele, and reports to the Washington Grain Commission. Scheduling 2020 field tours of variety trials is currently in progress.

Impact: Variety selection is a major decision on most farms and influences not only yield potential, but other management factors (input costs) such as insect and disease (pesticide applications), fertility, and herbicide program. The WSU spring barley VT has two important direct impacts: 1) Provides critical and unbiased data for growers to make informed decisions on which barley varieties are best adapted for their environment and management practices and 2) provides breeders, seed companies and seed dealers reliable information to make decisions regarding experimental line advancement, varietal releases/seed increases, and marketing strategies. Plant pathologists also use these trials to rate disease reactions. On average in 2019, there was a 570, 570, and 640 lb/a advantage between the highest yielding spring barley variety and the trial average in the >20", 16-20", and 12-16" precipitation zones, respectively. At \$5.00/cwt, potential additional income generated ranges from \$28 to \$32/acre. Multiplied across 85,000 acres of harvested barley, these trials have the potential to generate approximately \$2.6 million across the state.

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WGC project title: Evaluation of Barley Varieties
Project PI(s): Clark Neely
Project initiation date: 07-01-2019
Project year (X of 3-yr cycle): 1 of 3

| Objective | Deliverable | Progress | Timeline | Communication |
|---|---|---|--|--|
| 1. Conduct representative and objective barley variety field trial evaluations at locations that represent major production areas of Washington. | 12 spring barley trials; 24 entries/trial | 2019 trials completed (24 entries/trial) 2020 trials in planning | Trials are planted in the spring, data results are available to growers at the end of the harvest season. Field tours in summer. | Results from the variety trials are communicated via Extension programming and are detailed under Objective #4. |
| 2. Entries in trials will include: currently grown varieties and promising advanced breeding lines from the major public and private breeding programs in the region. | All widely grown, commercially available varieties and promising experimental lines are included in trials. | 2019 barley entries; 50% public, 50% private. Every major breeding program in the PNW is actively participating in the VTP. | Entries confirmed by February 15th. | Solicit entries by February 1. Maintain positive relationship with breeding programs to ensure future participation. |
| 3. Provide access to variety trials and harvested grain enabling other researchers and supporting projects to gather information from the trials. | Participation from other projects/ programs. | Data is used by breeders for variety release and promotional materials. | Ongoing cooperation and collaboration that fit with timelines and other listed objectives. | Disease ratings presented in seed buyers guide and variety selection tool, VTP data used for variety release and PVP applications. |
| 4. Deliver an Extension education program to make the results and interpretation of the variety trials available to growers, the seed industry, and other clientele. | a.) Grower meetings | Several planned for 2020 (Adams Co. Grower Mtg, PNW Farm Forum, Wheat Academy, etc.) | Will attend when invited | Attend in person; present results through powerpoint presentation and handouts. |
| | b.) Field Tours | 10 planned for 2020 | June-July 2020 | *List of Field Days provided below; provide paper handouts of data |
| | c.) Email List Serv | 2019 results delivered | November through December | Email list serve: Data sent to 213 members as it becomes available |
| | d.) Website | Up to date with 2019 data | November through December | Over 20,000 page views of the VTP section of the small grains website. |
| | e.) Annual Report | All data analysis is complete; site management information and supplemental tables being added. | January 2020 | The annual report will be published as a WSU technical report online and hard copy. |
| | f.) WSCIA Seed Buyers Guides | Tables in preparation | January-February 2020 | 2020 Seed Buyers Guide to be published in January-February 2020 |
| | g.) Wheat Life | Spring barley VT article completed | Barley VT article completed January 2020 | Articles published in Wheat Life in February 2020. |
| | h.) Variety Selection Tool (smallgrains.wsu.edu) | Selection tool needs to be updated with 2019 data | January-February 2020 | The variety selection tool has over 6,000 page views in 2019. |
| *Anticipated 2020 Barley Field Days: Horse Heaven, Walla Walla, Dayton, Moses Lake, Reardan, Mayview, St. John, Lamont, Farmington, Palouse | | | | |

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