

**Washington Grain Commission
Wheat and Barley Research Annual Progress Report**

Project #: 4150-1216

Progress Report Year: 3 of 3

Title: Evaluation of Wheat Varieties

Investigator: Ryan Higginbotham

Executive summary:

In 2015, the Cereal Variety Testing Program (VTP) conducted 21 soft winter, 12 hard winter, 16 soft spring, and 16 hard spring wheat variety trials across Eastern Washington. The total number of individual wheat plots evaluated was 7,344. Entries in the trials included submissions from 10 different breeding programs/cooperators. Variety performance information is delivered to wheat growers and other clientele through field tours (18 tours in 2015), grower meetings (6 in 2015), the variety testing website, emails with preliminary results after harvest (over 200 recipients), the variety selection tool (located at smallgrains.wsu.edu), *Wheat Life* articles, seed buyers guides, annual technical report, direct contact with clientele, and reports to the Washington Grain Commission. Grain from variety trials is used to generate information on end use quality, disease reactions, market class grading, and falling numbers.

Impact:

The economic value (impact) of the WSU VTP is measured by providing information to growers and seed industry personnel that leads to variety selections that maximize profitability and minimize risk. Choosing an appropriate wheat variety to plant is one of the easiest ways that a grower can increase production and decrease costs (through decreased inputs). In 2015, there were over 2.0 million acres of wheat planted in Washington. If growers use results produced by the VTP to select higher yielding, disease resistant wheat varieties to plant on their farms, one could assume a modest average yield increase of 1 bushel/acre, resulting in 2.0 million bushels of grain. Using an average market price of \$5.00/bushel, this would result in a gross increase of \$10 million to the Washington grain economy. An additional impact of the VTP comes through the evaluation of breeding lines, providing valuable information to aid breeders in variety release decisions, leading to new and improved wheat varieties available to growers in Washington. Seed dealers also use VTP data to make decisions about which varieties to make available to their patrons.

Some of the most direct and measurable impacts that this project had in 2015 are as follows:

1. The inclusion of every major wheat breeding program in the VTP trials. This provided growers and industry with a head-to-head comparison of the most widely grown varieties.
2. VTP field tours were attended by 448 farmers/clientele. At those tours, I highlighted each entry in the trial and gave a few details, strengths/weaknesses about each entry.
3. As soon as harvest results were available, they were distributed via email to a listserv with 202 members.
4. The variety testing section of the small grains website (<http://smallgrains.wsu.edu/variety/>) was the most visited section of the site (4,388 page views).

WGC project number: 4150-1216
WGC project title: Evaluation of Wheat Varieties
Project PI(s): Ryan Higginbotham
Project initiation date: July 1, 2013
Project year: 3 of 3

| Objective | Deliverable | Progress | Timeline | Communication |
|---|--|---|---|--|
| 1. Conduct wheat variety trials in Eastern Washington | a) 21 soft winter wheat trials; 48-60 entries/trial | a) 2016 trials planted; 2015 results finished | Trials are planted in the spring or fall, data results are available to growers shortly after harvest. Field tours throughout the summer. | Results from variety trials are communicated via Extension programming and are detailed under Objective #4. |
| | b) 11 hard winter wheat trials; 30 entries/trial | b) 2016 trials planted; 2015 results finished | | |
| | c) 16 soft spring wheat trials; 24 entries/trial | c) 2016 trials in planning; 2015 results finished | | |
| | d) 16 hard spring wheat trials; 42 entries/trial | d) 2016 trials in planning; 2015 results finished | | |
| | | An additional irrigated site was added in 2015 and an additional high rainfall spring site will be added in 2016 | | |
| 2. Public and private entries in trials | All widely grown, commercially available varieties included in trials. | 2016 winter trials: 35% WSU, 31% Private, 34% Other Public: Every major breeding program in the PNW is actively participating in the VTP trials. 2016 winter entries can be viewed on the variety testing website | Winter entries by Aug. 15th and spring entries by Feb. 15th | Solicit winter entries August 1 and spring entries February 1. Maintain positive relationship with breeding programs to ensure future participation. |
| | | 2015 spring wheat trials: 42% WSU, 38% Private, 20% Other Public | | |
| 3. Trials and data available to other projects | Participation by other projects/programs | Cooperation with breeders, pathologists, quality lab, FGIS, seed dealers, WSCIA, Extension | Ongoing cooperation and collaboration that fit with timelines and other listed objectives | Quality results in G&E study and preferred variety pamphlet, falling number results presented by corresponding project, disease ratings presented in seed buyers guide and variety selection tool, VTP data used for <u>variety release and PVP applications</u> |
| 4. Extension programming | Grower Meetings | 5 grower mtgs in 2015; 2 already planned in 2016 | Whenever I'm asked to speak | Grower Meetings: 5 in 2015; accepting invites for 2016 |
| | Field Tours (with county Extension) | 20 planned for 2016 | May 2016 - July 2016 | *Field Tours: 18 in 2015 (listed below) |
| | Email List serve | 2015 results delivered | July 2015 - Sept. 2015 | Email list serve: data sent to 200+ members |
| | Website | up to date with 2015 data & 2016 maps | summer & fall | 4,388 pageviews of the VTP section of small grains website |
| | Annual Report | Published in December 2015 | December | Annual Report: 2015 Technical Report 15-3 |
| | WSCIA Seed Buyers Guides | in preparation | spring in Feb. winter in May | To be published in 2016 |
| | Wheat Life Article | 2015 articles written by previous PI, I will write 2016 articles | spring in Feb. winter in May | Wheat Life: 2 articles planned for 2016 |
| | Variety Selection Tool (http://smallgrains.wsu.edu) | Selection tool updated with 2015 results. Initiating tool to track website traffic/users. | Post harvest/as data is processed | The variety selection tool has been highlighted/promoted at grower meetings, field tours. |

*** 2015 PNW CROP TOUR SCHEDULE--WHEAT**

| Location | Date | Attendance | Crops |
|-----------------------------|--------|------------|-----------------------|
| Horse Heaven | 2-Jun | 26 | Winter & Spring Wheat |
| Ritzville | 3-Jun | 22 | Winter Wheat |
| Connell | 4-Jun | 21 | Winter Wheat |
| Western Whitman Co. - Dusty | 4-Jun | 23 | Winter Wheat |
| Harrington | 10-Jun | 14 | Winter Wheat |
| St. Andrews | 12-Jun | 15 | Winter Wheat |
| Fairfield | 16-Jun | 26 | Winter Wheat |
| Moses Lake | 17-Jun | 32 | Winter & Spring Wheat |
| Walla Walla | 23-Jun | 22 | Winter & Spring Wheat |
| N. Lincoln Co. - Creston | 23-Jun | 55 | Winter Wheat |
| Dayton | 24-Jun | 30 | Winter & Spring Wheat |
| Almira | 24-Jun | 75 | Winter & Spring Wheat |
| Bickleton | 25-Jun | 6 | Spring Wheat |

| | | | |
|------------|--------|--------------------|-----------------------|
| Reardan | 25-Jun | 20 | Winter & Spring Wheat |
| Mayview | 30-Jun | 23 | Winter & Spring Wheat |
| St. John | 9-Jul | 10 | Winter & Spring Wheat |
| Lamont | 9-Jul | 10 | Winter & Spring Wheat |
| Farmington | 9-Jul | 18 | Winter & Spring Wheat |
| | | Total = 448 | |