

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

**Project #:** 4127-1604  
**Progress Report Year:**   1  of  3    
**Title:** Evaluation of Wheat Varieties  
**Investigator:** Ryan Higginbotham

**Executive summary:**

In 2016, the Cereal Variety Testing Program (VTP) conducted 22 soft winter, 13 hard winter, 18 soft spring, and 18 hard spring wheat variety trials across Eastern Washington. The total number of individual wheat plots evaluated was 7,362. Entries in the trials included submissions from 12 different breeding programs/cooperators. Variety performance information is delivered to wheat growers and other clientele through field tours (18 tours in 2016), grower meetings (3 in 2016), the variety testing website, emails with preliminary results after harvest (over 200 recipients), the variety selection tool (located at [smallgrains.wsu.edu](http://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 1.9 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 1.9 million bushels of grain. Using an average market price of \$4.00/bushel, this would result in a gross increase of \$7.6 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 offer for their patrons.

Some of the most direct and measurable impacts that this project had in 2016 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 463 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 208 member and posted to the project website.
4. The variety testing section of the small grains website (<http://smallgrains.wsu.edu/variety/>) was the most visited section of the site (7,053 page views).

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**WGC project title:** Evaluation of Wheat Varieties  
**Project PI(s):** Ryan Higginbotham  
**Project initiation date:** July 1, 2016  
**Project year:** 1 of 3

Objective	Deliverable	Progress	Timeline	Communication
1. Conduct wheat variety trials in Eastern Washington	a) 24 soft winter wheat trials; 48-54 entries/trial	a) 2017 trials planted; 2016 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) 16 hard winter wheat trials; 18 entries/trial	b) 2017 trials planted; 2016 results finished		
	c) 18 soft spring wheat trials; 24 entries/trial	c) 2017 trials in planning; 2016 results finished		
	d) 18 hard spring wheat trials; 36 entries/trial	d) 2017 trials in planning; 2016 results finished		
		An additional irrigated site (Pasco), and high rainfall spring site (Palouse) were added in 2016. In the Fall of 2016, a winter trial was planted at Bickleton, the HRW trial was added to Anatone, and a new winter location (Eureka) was added in cooperation with OSU.		
2. Public and private entries in trials	All widely grown, commercially available varieties included in trials.	2017 winter trials: 27% WSU, 44% Private, 29% Other Public: Every major breeding program in the PNW is actively participating in the VTP trials. 2017 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.
		2016 spring wheat trials: 45% WSU, 49% Private, 6% 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 variety release and PVP applications
4. Extension programming	Grower Meetings	4 grower mtgs in 2016;	Whenever I'm asked to speak	Grower Meetings: 3 in 2016; accepting invites for 2017
	Field Tours (with county Extension)	20 planned for 2017	May 2017 - July 2017	*Field Tours: 18 in 2016 (listed below)
	Email List serve	2016 results delivered	July 2016 - Sept. 2016	Email list serve: data sent to 200+ members
	Website	up to date with 2016 data & 2017 maps	summer & fall	7,053 pageviews of the VTP section of small grains website
	Annual Report	Published in December 2015	December	Annual Report: 2016 Technical Report 16-3
	WSCIA Seed Buyers Guide	2016 guide published, 2017 in preparation	January--February	2016 Seed Buyers Guide published in Jan. 2016
	Wheat Life Articles	2 articles written in 2016	spring in Feb. winter in May	Wheat Life: 2 articles planned for 2017
	Variety Selection Tool ( <a href="http://smallgrains.wsu.edu">http://smallgrains.wsu.edu</a> )	Selection tool updated with 2016 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.

**\* 2016 TOUR SCHEDULE--WHEAT**

Location	Date	Attendance	Crops
Horse Heaven	7-Jun	39	Winter & Spring Wheat
Ritzville	8-Jun	40	Winter Wheat
Western Whitman Co. - Dusty	9-Jun	14	Winter Wheat
Connell	9-Jun	21	Winter Wheat
Harrington	15-Jun	30	Winter Wheat
St. Andrews	17-Jun	24	Winter Wheat
Fairfield	21-Jun	21	Winter & Spring Wheat
Almira	22-Jun	85	Winter & Spring Wheat
Reardan	23-Jun	20	Winter & Spring Wheat
Walla Walla	28-Jun	14	Winter & Spring Wheat
Dayton	29-Jun	33	Winter & Spring Wheat

Mayview	30-Jun	30	Winter & Spring Wheat
Anatone	30-Jun	12	Winter Wheat
Palouse	11-Jul	14	Spring Wheat
Bickleton	12-Jul	22	Spring Wheat
Farmington	13-Jul	18	Winter & Spring Wheat
St. John	14-Jul	12	Winter & Spring Wheat
Lamont	14-Jul	14	Winter & Spring Wheat
		<b>Total = 463</b>	