

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

**Project #:** 4127-1604

**Progress Report Year:**   2  of  3  

**Title:** Evaluation of Wheat Varieties

**Investigator:** Ryan Higginbotham

**Executive summary:**

In 2017, the Cereal Variety Testing Program (VTP) conducted 24 soft winter, 16 hard winter, 18 soft spring, and 18 hard spring wheat variety trials across eastern Washington. The total number of individual wheat plots evaluated was 8,172. 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 (20 tours in 2017), grower meetings (5 in 2017), 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 buying 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 2016, there were roughly 1.8 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 \$7.2 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 2017 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 505 farmers/clientele. At those tours, I highlighted each entry in the trial and gave a few details, strengths/weaknesses about each entry.
3. The addition of winter wheat trials at Bickleton and Eureka, and the partnership with OSU on trials at Dayton, Walla Walla and Eureka.
4. The variety testing section of the small grains website (<http://smallgrains.wsu.edu/variety/>) was the most visited section of the site (23,815 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:** 2 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) 2018 trials planted; 2017 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) 2018 trials planted; 2017 results finished		
	c) 18 soft spring wheat trials; 24 entries/trial	c) 2018 trials in planning; 2017 results finished		
	d) 18 hard spring wheat trials; 36 entries/trial	d) 2018 trials in planning; 2017 results finished		
		We are continuing the collaboration with OSU on trials at Dayton, Walla Walla and Eureka. To meet grower demands and better represent the production area, the >16" trial was planted at Dusty and Eureka, despite the fact that those locations receive less than 16" of precip. The "higher rainfall" entries are more common and relevant at those locations.		
2. Public and private entries in trials	All widely grown, commercially available varieties included in trials.	2018 winter trials: 58% Public and 42% Private. Every major breeding program in the PNW is actively participating in the VTP trials. 2018 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.
		2017 spring trials: 51% Public and 49% Private		
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	5 grower mtgs in 2016;	Whenever I'm asked to speak	Grower Meetings: 5 in 2017;
	Field Tours (with county Extension)	20 planned for 2018	May 2017 - July 2017	*Field Tours: 20 in 2017 (listed below)
	Email List serve	2017 results delivered	July 2016 - Sept. 2016	Email list serve: data sent to 200+ members
	Website	up to date with 2017 data & 2018 maps	summer & fall	23,815 pageviews of the VTP section of small grains website
	Annual Report	Published in December 2017	December	Annual Report: 2017 Technical Report 17-3
	WSCIA Seed Buyers Guide	2017 guide published, 2018 in preparation	January--February	2017 Seed Buyers Guide published in Jan. 2017
	Wheat Life Articles	2 articles written in 2017	spring in Feb. winter in May	Wheat Life: 2 articles planned for 2018
	Variety Selection Tool ( <a href="http://smallgrains.wsu.edu">http://smallgrains.wsu.edu</a> )	Selection tool updated with 2017 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.
<b>*2017 TOUR SCHEDULE--WHEAT</b>				
<b>Location</b>	<b>Date</b>	<b>Attendance</b>	<b>Crops</b>	
Horse Heaven	6-Jun	29	Winter & Spring Wheat	
Ritzville	7-Jun	23	Winter Wheat	
Western Whitman Co. - Dusty	8-Jun	12	Winter Wheat	
Connell	8-Jun	32	Winter Wheat	
Harrington	14-Jun	28	Winter Wheat	
St. Andrews	16-Jun	15	Winter Wheat	
Mayview	20-Jun	20	Winter & Spring Wheat	
Eureka	20-Jun	31	Winter Wheat	
Walla Walla	21-Jun	90	Winter Wheat	
Dayton	22-Jun	31	Winter & Spring Wheat	
Anatone	22-Jun	8	Winter Wheat	
Moses Lake	27-Jun	12	Winter & Spring Wheat	
Almira	27-Jun	80	Winter & Spring Wheat	

Reardan	28-Jun	15	Winter & Spring Wheat
Fairfield	29-Jun	21	Winter & Spring Wheat
St. John	6-Jul	10	Winter & Spring Wheat
Lamont	6-Jul	8	Winter & Spring Wheat
Farmington	7-Jul	11	Winter & Spring Wheat
Palouse	7-Jul	10	Spring Wheat
Bickleton	11-Jul	19	Winter & Spring Wheat
		<b>Total = 505</b>	