

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

Project #: 4127-1604
Progress Report Year: 2 of 3
Title: Evaluation of Wheat Varieties
Researcher: Clark Neely
Cooperators: A. Carter, K. Garland-Campbell, M. Pumphrey

Executive summary: For the 2020 season, the Variety Testing Program planted 23 SWWW, 15 HRWW, 18 SWSW, and 18 HRSW trials. Of these, two SWWW, one HRWW, and one HRSW trial were lost due to resistant weed issues or high variability within the trial. Weather was mostly favorable throughout the state with at or above average yields for the majority of sites. Dry conditions in March and early April allowed for most spring sites to be planted one to four weeks earlier than normal. Cooler temps and precipitation picked up in late April and hung around through June improving yields. Dry conditions in the early fall of 2020 delayed winter wheat emergence in higher rainfall zones despite timely planting. All 2020 individual location winter data was posted by August 30 (spring wheat data was posted by October 23) on to the WSU Small Grains website (<http://smallgrains.wsu.edu>). The 2020 final report with additional information was posted January 5. 2021 Winter Field Maps were posted online November 23. The Variety Testing Program was unable to conduct in-person field days due to COVID-19 and so virtual field days were recorded at four locations and posted on the CAHNRS YouTube Channel (www.youtube.com/user/WSUCAHNRS).

Impact: With over 90% of Washington wheat planted with certified seed, 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 control (pesticide applications), fertility, and herbicide program. The WSU variety testing program provides critical and unbiased information for growers to make informed decisions on which wheat varieties are best adapted for their environment and management practices. On average in 2020, there was an 9, 11, 7, and 11 bu/a spread between the highest yielding variety and the trial average for the SWWW, HRWW, SWSW, and HRSW trials, respectively. At \$5.56/bu, potential additional income generated ranges from \$39 to \$61/acre. Multiplied across the 1.75 million and 0.54 million acres of harvested winter and spring wheat, respectively, these variety trials have the potential to generate approximately \$103 million across the state. In addition to grower benefits, breeders, seed companies and seed dealers rely on this information to make decisions regarding experimental line advancement, varietal releases/seed increases, and marketing strategies. Samples and data generated from these trials are also critical for wheat quality testing and development of the Preferred Wheat Varieties brochure. This information is important for promoting adoption of high-quality wheat varieties and helps secure overseas markets. Collectively, 47 individual presentations went into producing the four virtual field days that received 1,393 views.

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WGC project title: Evaluation of Wheat Varieties				
Project PI(s): Clark Neely				
Project initiation date: 07-01-2019				
Project year (X of 3-yr cycle): 2 of 3				
Objective	Deliverable	Progress	Timeline	Communication
1. Conduct representative and objective wheat variety field trial evaluations at locations that represent major production areas of Washington.	a) 24 soft winter wheat trials; 48-60 entries/trial	a) 2021 winter trials planted; 2020 results finished Collaborative trials are continuing with OSU at Eureka and Walla Walla.	Trials are planted in the spring or fall, data results are available to growers at the end of the harvest season. Field tours/virtual field days in summer.	Results from the variety trials are communicated via Extension programming and are detailed under Objective #4.
	b) 16 hard winter wheat trials: 30-36 entries/trial	b) 2021 winter trials planted; 2020 results finished		
	c) 18 soft spring wheat trials; 22 entries/trial	c) 2020 results finished		
	d) 18 hard spring wheat trials; 30 entries/trial	d) 2020 results finished; 2021 fall-planted DNS trials planted		
2. Trial entries include: currently grown varieties and advanced breeding lines from major public and private breeding programs in the region.	All widely grown, commercially available varieties and promising experimental lines are included in trials.	2020 winter trials; 52% public, 48% private. Every major breeding program in the PNW is actively participating in the VTP. 2021 winter entries, locations, and maps have been posted on the variety testing website.	2021 winter entries were confirmed by August 21st and spring entries will be confirmed by February 12th.	Solicit winter entries by August 5 and spring entries by January 15th. 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 and ratings of characteristics from other projects/ programs.	Cooperation with breeders, pathologists, entomologists, quality lab, FGIS, seed dealers, WSCIA, other universities, and Extension.	Ongoing cooperation and collaboration that fit with timelines and other listed objectives.	Quality results in preferred variety pamphlet, falling number results presented by corresponding project, disease ratings presented in seed buyers guide, VTP data used for variety release and PVP applications. All data/ratings included in variety selection tool.
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	Attended Adams Co., Spokane Co. and PNW Farm Forum meetings (2020). Others cancelled (COVID).	Will attend when invited.	Attend in person and present results through powerpoint presentation and handouts.
	b.) Field Tours	21 planned for 2021; virtual field days will be filmed at select locations if in-person field days are not possible due to COVID-19 restrictions.	June-July	*List of Field Days provided below; provide paper handouts of data
	c.) Email List Serv	2020 results delivered	August through November	Email list serve: Data sent to 213 members as it becomes available
	d.) Website	Up to date with 2020 data	August through December	9,950 pageview for 2019 VT data (in 2020); 8,267 pageviews for 2020 VT data; 171 pageview for 2021 field maps
	e.) Annual Report	All 2020 data analysis is complete; site information and supplemental tables included in the final report that is now posted online.	December	The annual report will be published as a WSU technical report online and hard copy.
	f.) WSCIA Seed Buyers Guides	2020 tables completed and published in guide and 2021 tables in preparation.	January-February	Seed Buyers Guide published in January-February
	g.) Wheat Life	Spring VT article completed; Winter VT article to be written in May 2021	Spring VT article: January Winter VT article: May	Articles published in Wheat Life in January and May each year.
	h.) Variety Selection Tool (smallgrains.wsu.edu)	Selection tool updated with spring 2020 data. 2020 winter data to be uploaded in January 2021.	December - January	The variety selection tool had 10,426 pageviews in 2020.
*Anticipated 2021 in-person Wheat Field Days are subject to COVID-19 restrictions. If in-person events are not possible, virtual field days will be posted online instead. Field days held at Horse Heaven, Ritzville, Dusty, Connell, Lind, Harrington, St. Andrews, Eureka, Walla Walla, Dayton, Moses Lake, Creston, Almira, Reardan, Mayview, Anatone, Fairfield, St. John, Lamont, Bickleton, Farmington, Palouse.				