

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

Project #: 4721

Progress Report Year: 3 of 3

Title: Quality of Varieties & Pre-release Lines: Genotype & Environment-“G&E” Study

Cooperators: Ryan Higginbotham, Kim Garland-Campbell, Arron Carter, Mike Pumphrey

Executive summary: The 2013 and 2014 crop samples are complete; the 2015 harvest sample analysis is nearly complete. As in previous years, all quality data are analyzed using the *t*-Score statistic. The quality *t*-Scores for each spring hard red, hard white, soft white common and club varieties, and winter hard red, hard white, soft white common and club varieties are summarized using ‘Grain’, ‘Milling’, ‘End-Product’, and ‘Overall’ Scores. Varieties in each market class/sub-class are then ranked by the Overall Score. All varieties and advanced breeding lines with three or more years of data are included in the final listing. We will meet with regional cereal quality experts at the PNW Wheat Quality Council meeting to discuss new entries for the Preferred Variety pamphlet.

Using these results and analyses, the WWQL works closely with the WGC to develop the, “*Preferred WHEAT VARIETIES for Washington based on end-use quality*”. Completion of the spring wheat pamphlet in February represents the first significant accomplishment. We coordinate variety classification with Oregon and Idaho.

Impact: This ‘G&E’ project provides value to growers in two significant ways: First, it documents and highlights the quality of varieties so that growers are aware of the importance of quality and will hopefully include quality in their seed-buying decisions. Data are objective “head-to-head” results on Private and Public varieties. Secondly, the data generated by the G&E study supports in a major way the analysis of new breeding lines and the WSU Variety Release process. This program is also “highly visible” such that good end-use quality is reinforced as a priority in both private and public breeding programs throughout the region.

Outputs and Outcomes:

A. Progress: The third year of G&E samples are in the process of being completed. Complete milling and baking data are subjected to statistical analysis to generate, 1) direct comparisons

with one or more checks to be used in WSU Cereal Variety Release packets. These analyses provide the breeder and the Committee an objective basis upon which to make release decisions, and 2) *t*-Scores are used to evaluate advanced and newly released varieties and provide rankings for the Preferred Variety pamphlet. This pamphlet has been highly successful in communicating to growers the relative quality of varieties and emphasized the importance of choosing better quality varieties to plant on their farms.

WGC project number:

4721

WGC project title:

Quality of Varieties & Pre-release Lines: Genotype & Environment – “G&E” Study

Project PI(s):

Craig F. Morris

Project initiation date:

1-Jul-16

Project year (X of 3-yr cycle): 1 of 3 year cycle

Objective	Deliverable	Progress	Timeline	Communication
Obtain statistically robust analysis of end-use quality of advanced breeding lines to support WSU variety release packets	Statistical analysis of experimental line versus one or more checks for each of the important end-use quality traits.	Analyses are provided for Preliminary Seed Increase and Full Release proposals when requested by the breeders	As requested, prepared for WSU Cereal Variety Release meeting (typically February)	Communication with breeder and WSU Cereal Variety Release Committee
Obtain statistical t-scores on advanced and recently released lines to provide ranking for the Preferred Variety pamphlet	Individual t-scores, summary t-scores for Grain, Milling and Baking, and an overall ranking in the pamphlet	Analyses and statistics are generated early in the calendar year; the regional cereal quality leaders meet at the PNW Wheat Quality Council to discuss rankings	Preliminary scores are ready for discussion at the PNW WQC meeting	New entries are provided to the WGC for each year's new Preferred Variety pamphlet
	Wheat Life article			