

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

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Executive summary: The 2017 harvest sample analysis is nearing completion; the project also covered the 2015 and 2016 harvests (3 years). As in previous years, all quality data were/will be analyzed using the *t*-Score statistic. The quality *t*-Scores for each soft white winter, club, soft white spring and club, hard red winter, hard red spring and hard white winter and spring 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.

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*” each year with annual updates. Completion of the variety rankings in February represents the first significant accomplishment each year 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.

Deliverables: Over the three years of the project period, we processed 3,518 samples, broken down as follows: SWW 1,888, SWS 346, Club 239, Hard Winter 652, and Hard Spring 393.

Inserted at the end is the recent Preferred Variety pamphlet.

Outputs and Outcomes:

Following are recent advanced lines and released varieties that were supported with complete end-use quality analyses:

4J71366C	Pritchett	winter club
KXB-01	--	--
WA8118	Sprinter	HRS
WA8124	Ryan	SWS
WA8143	Curiosity CL+	SWW
WA8155	Mela CL+	SWW
WA8158	--	HWW
WA8162	Seahawk	SWS
WA8165	Chet	HRS
WA8166	Alum	HRS
WA8169	Jasper	SWW
WA8177	--	SWW
WA8180	Sequoia	HRW
WA8184	Earl	HWW
WA8187	Resilience CL+	SWW
WA8189	--	SWS
WA8189	Tekoa	SWS
WA8193	Melba	spring club
WA8212	--	SWW
WA8232	--	SWW
WA8235	--	SWW

2017 Quality Rankings

Varieties are listed by statistical quality rankings by class. When making a decision between varieties with similar agronomic characteristics and grain yield potential, choose the variety with the higher quality ranking. This will help to increase the overall quality and desirability of Pacific Northwest (PNW) wheat.

Most Desirable (MD)—These varieties generally have high test weights, appropriate protein content (kernel properties), and excellent milling and end-use properties.

Desirable (D)—The kernel, milling, and end-use qualities of these varieties range from good to very good. The quality attributes of these varieties are desirable in international trade.

Acceptable (A)—The kernel, milling, and end-use qualities of these varieties range from acceptable to good. Individual varieties may possess minor flaws. The quality attributes of these varieties are acceptable in international trade.

Least Desirable (LD)—These varieties have displayed low quality characteristics for this class of wheat. The intrinsic quality of PNW wheat will be improved if these varieties are not planted.

Unacceptable Except Customer-Specific Uses (UCS)—One or more critical flaws in quality are present in these varieties and will not make suitable products for this class of wheat. Production of these varieties should be targeted to specific end-uses and kept strictly segregated from general commercial channels.

These rankings are based on the results of the *Genotype and Environment Study (G&E)* quality testing conducted by the USDA Western Wheat Quality Laboratory, the Washington State University Wheat Quality Program, the University of Idaho Wheat Quality Laboratory, and the Oregon State University Cereal Quality Laboratory, including relevant breeding nurseries.

End-use quality determinations were based on results from grain, milling and product quality tests.

The quality scores presented here reflect a minimum of three years' data in the G&E study, using a reference variety for each class. The scores are reviewed yearly as new data becomes available, and are subject to change. Varieties not listed have not been tested or have less than three years of data. For complete results, please visit the website:

www.wsu.edu/~wvqq/php/index.php

For agronomic information, please consult: 1) the Washington State Crop Improvement Association Certified Seed Buying Guide; 2) WSU Uniform Cereal Variety Testing Program (<https://variety.wsu.edu>); 3) North Idaho Extension, Cereals Program (<http://cats.uidaho.edu/cereals/indaho/>); 4) Oregon Elite Yield Trials (http://cropandsoil.oregonstate.edu/wheat/state_performance_data.htm).



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Washington
Oregon
North Idaho

Preferred Wheat Varieties 2017

Based on end-use quality

Soft White Winter

Bobtail	OSU	MD
Brundage96	UI	MD
BrundageCF	UI	MD
ARS-Amber	ARS	MD
Kaseberg	OSU	MD
Bruneau	UI	MD
Ladd	OSU	MD
Puma	OSU	MD
WSU UI Huffman	WSU UI	MD
WB-Junction	WB	MD
Jasper	WSU	MD
ARS-Selbu	ARS	D
Mary	OSU	D
ORCF101	OSU	D
Masami	WSU	D
LCS Drive	LCS	D
SY Ovation	SY	D
Skiles	OSU	D
UI Sparrow	UI	D
WB 523	WB	D
Legion	SY	D
Etan	WSU	D
Norwest Duet	OSU/LCS	D
WB-528	WB	D
Otto	WSU	D
Stephens	OSU	D
SY Assurance	SY	A
ORCF103	OSU	A
Madsen	ARS	A
LCS Artdeco	LCS	A
Mela CL+	WSU	A
Rosalyn	OSU	A
WB1604	WB	A
ORCF102	OSU	A
WB-1070CL	WB	A
Curiosity CL+	WSU	A
WB1529	WB	A
Goetze	OSU	A
WB-1066CL	WB	A
AP700CL	SY	A
WB 456	WB	LD
Xerpha	WSU	LD
Tubbs06	OSU	LD
SY107	SY	LD

Soft White Spring

UI Stone	UI	MD
Tekoa	WSU	MD
Divya	WSU	MD
WB6341	WB	MD
Louise	WSU	MD
Alturas	UI	MD
Ryan	WSU	MD
Seahawk	WSU	MD
Whit	WSU	MD
Babe	WSU	MD
Nick	WB	D
Cataldo	UI	D
WB-1035CL+	WB	UCS

Club

ARS-Crescent	ARS	MD
Cara	ARS	MD
Chukar	ARS	MD
ARS-Pritchett	ARS	D
ARS-Chrystal	ARS	D
Bruehl	WSU	D
Coda	ARS	D

Spring Club

Melba	WSU	MD
JD	WSU	MD

Hard White Winter¹

UI Silver	UI	MD
Darwin	UI	MD
MDM	WSU	A
Palomino	SY	LD

Hard White Spring¹

UI Platinum	UI	MD
WB-Hartline	WB	D
Dayn	WSU	D
LCS Star	LCS	A
BR7030	Arizona Plant Breeders	UCS

¹Hard white wheats are scored for export quality requirements such as bread quality and potential noodle quality.

Hard Red Winter

WB-Arrowhead	WB	MD
Eddy	WB	MD
Sprinter	WSU	MD
UI SRG	UI	MD
Whetstone	SY	MD
Norwest 553	OSU	D
Buchanan	WSU	D
LCS Evina	LCS	D
Farnum	WSU	D
LCS Jet	LCS	A
Keldin	WB	A
Rimrock	WB	A
Esperia	Societa Produttori Sementi Spa	A
LCS Colonia	LCS	A
LCS Azimut	LCS	A
Residence	Cebeco	UCS
Estica	Cebeco	UCS
Symphony	Tanio Tech	UCS

Hard Red Spring

Hollis	WSU	MD
SY605 CL	SY	MD
Alum	WSU	MD
SY Steelhead	SY	MD
Glee	WSU	MD
Chet	WSU	MD
WB-Fuzion	WB	MD
LCS Luna	LCS	MD
Winchester	UI	D
LCS Iron	LCS	D
Bullseye	SY	D
Jefferson	UI	D
Kelse	WSU	D
Jedd	WB	A
WB 9879CLP	WB	A
Buck Pronto	LCS	A

Abbreviations

WSU	Washington State University
OSU	Oregon State University
UI	University of Idaho
ARS	Agricultural Research Service
SY	Syngenta
WB	Westbred/Monsanto
LCS	Limagrain Cereal Seeds