

Wheat Research Progress Report

Project #: 3057-4179

Title: Supplemental Support for Assessing the Quality of Washington Wheat Breeding Samples

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Cooperators: Kim Garland-Campbell, Byung-kee Baik, Kulvinder Gill, K. Kidwell, S. Jones

Progress Report Year: 2008

ACCOMPLISHMENTS & RESULTS:

This WWC support provides for about 3 ½ months of technician time. The additional work is devoted to evaluating breeder samples for quality from October through mid-January.

At the request of K. Kidwell, spring wheat samples were given priority over winter wheat samples. The aim is to coordinate with Dr. Byung-kee Baik and Tracy Harris and complete as many analyses as possible before spring planting decisions in early February. In this way, the spring wheat program is made more efficient because inferior quality lines are not planted and grown. The standing goal for WSU winter wheat breeding lines is to complete as many as possible before June 1. We work very closely with Dr. Baik and Ms. Harris in conducting this work. Milling and baking evaluations of the 2007-Crop were completed and 2008-Crop testing is well under way at the Western Wheat Quality Lab.

We provide breeders with SKCS single kernel size, weight, and hardness, and the variability (SD) of each; grain protein, test weight, flour yield, break flour yield, milling score, flour ash and protein, dough mixing time and type, dough water absorption, Brookfield viscosity (clubs), cookie diameter and score, bread volume and score, sponge cake volume, and RVA (Rapid Visco Analyzer) peak pasting viscosity or Flour Swelling Volume (FSV) (RVA and FSV are for starch quality).

Accomplishments = varieties:

We cooperated in the testing and release of the **top six** soft white winter common wheat varieties grown in Washington in 2007: Eltan (1990, WSU), Madsen (1988, ARS), Tubbs (2001, OSU), Stephens (OSU, 1977), ORCF-102 (OSU, 2004), and ORCF-101 (2003, OSU). We also participated in the release of the two most recent soft white winter common wheat varieties by the WSU winter wheat breeding program: Rod (1992) and Masami (2004); and in the release of Finch (2001) by Dr. Kim Campbell of the ARS.

For club wheats, we cooperated in the testing and release of all of the **top seven** soft white winter club wheat varieties in Washington for 2007, representing 99% of club wheat acreage. The top three varieties for 2007 were: Bruehl (1999), Chukar (2001), and Coda (1998).

Hard red winter (HRW) wheat acreage increased dramatically and was grown on 1,820,000 Washington acres in 2007. The WWQL participated in the development and release of **three of the top nine** HRW varieties: Bauermeister (2005), Finley (1996) and Buchanan (1990). These varieties represent 48% of Washington's HRW acreage.

The WWQL cooperated in the development and release of **two of the top three** soft white spring (SWS) wheat varieties: Louise (2004) and Alpowa (1994), which were grown on 69% of all SWS Washington acres in 2007.

In the hard red spring class, the WWQL cooperated with WSU on the development and release of Scarlet (#5 statewide), Hollis (#6), and Tara 2002 (#9). Together, these 3 varieties were grown on over 19% of the HRS acreage.

PUBLICATIONS, PRESENTATIONS & REPORTS:

This supplemental quality evaluation work is provided as a direct service to breeders, wheat producers, and the PNW milling and baking industries. Data are posted to the web site of the Western Wheat Quality Laboratory. A listing of publications for the calendar year 2007 follows:

Jones, S. S., Lyon, S. R., Balow, K. A., Gollnick, M. A., Murray, T. D., Chen, X. M., **Morris, C. F.**, Garland-Campbell, K., Burns, J. W., Schillinger, W. F., Reisenauer, P. E. and Goates, B. J. 2007. Registration of 'Bauermeister' Wheat. *Crop Sci.* 47:430-431.

The following publication did not include any co-authors from the Wheat Quality Lab

S. S. Jones, S. R. Lyon, K. A. Balow, M. A. Gollnick, K. M. Murphy, T. D. Murray, X.-M. Chen, K. Garland-Campbell, J. W. Burns, W. F. Schillinger, P. E. Reisenauer, and B. J. Goates
Registration of 'MDM' Wheat. *Journal of Plant Registrations* 1:104-106.