



Preferred Wheat Varieties Lists for Oregon:

Soft White Winter and White Club Wheats

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Oregon wheat growers are increasingly aware of the need to supply high quality grain to the marketplace in order to remain competitive. Accordingly, growers are demanding guidance on which varieties to choose when making seed purchase decisions for the upcoming crop.

Currently in its first year, the new Oregon Wheat Quality Evaluation Program does not yet have sufficient multi-location, multi-year wheat quality data specific to Oregon's agroclimatic zones from which to derive preferred variety lists. However, many wheat varieties grown in Oregon were represented in a large genotype and environment (G&E) study conducted largely in Washington by the Western Wheat Quality Laboratory between 1997 and 2002 (WWQL, Engle and Morris 2002).

Using data from the G&E study, an interim initiative has been formulated to provide timely guidance on variety selection to Oregon wheat producers. This interim solution has been formulated with input from the Oregon wheat industry, and with the cooperation of the WWQL and the Washington Wheat Commission. The strategy of the initiative was to generate preferred variety lists for Oregon soft white winter (SWW) and white Club wheats by using a subset of the sites from the full G&E study. The sites used include three from Oregon from 2001, and a subset of Washington sites that are climatically similar to Oregon. This change in the database required that we recalculate the statistical "t-scores". These t-scores are used to rank varieties in relation to the check varieties, Stephens for SWW, and Rely for Club wheat. The same statistical model was used by the WWQL to generate the t-scores used in the Washington preferred variety lists, which you may have seen. However, the format for presenting the Oregon list is modeled after the format used for hard winter wheats in Kansas (Bennett et al 2002).

For the Oregon Preferred Lists, the t-scores were used to group the varieties into four categories, based on whether the overall scores were significantly higher, significantly lower, or not significantly different from the check varieties. When varieties were not significantly different from the check, but ranked higher, they were

considered "desirable". When varieties were not significantly different from the check, but ranked lower, they were considered "acceptable". The statistical model used to rank Oregon grown varieties may be revised in the future as we consider alternative statistical approaches.

Overall t-scores are a composite made up of the weighted average of t-scores for important quality traits of SWW and Club wheats. The weightings were devised by the WWQL. The traits and score calculations are detailed below.

$\text{Grain quality} = (\text{test weight} \times 0.2) - (\text{wheat protein} \times 0.8^*)$ $\text{Milling quality} = (\text{milling score} \times 0.6) + (\text{break flour yield} \times 0.4)$ $\text{End-use quality} = (\text{cookie diameter} \times 0.8) - (\text{mixograph absorption} \times 0.2^*)$ $\text{Overall Score} = (\text{grain} \times 0.1) + (\text{milling} \times 0.4) + (\text{end-use} \times 0.5)$
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*Contributions of protein content and mixograph absorption are subtracted because higher values of each are less desirable.



Guidance for Use: When you have a choice between two varieties with similar agronomic characteristics and grain yield potential, then choose the one from the higher quality category. Doing this will help to increase the overall quality and desirability of the Oregon wheat crop.

Most Desirable: These varieties generally have high test weights, lower protein contents, and excellent milling and end-use properties.

Desirable: 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, and are statistically indistinguishable from their check varieties when they are grown in Oregon.

Acceptable: 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, and are statistically indistinguishable from their check varieties when they are grown in Oregon.

Least Desirable: One or more critical flaws in quality are present in these varieties. Major flaws are listed in parentheses after the variety name. The intrinsic quality of the Oregon SWW wheat crop will be improved if these varieties are not planted.

References

- Bennett R., Chung O.K., Herman T.J. 2002. "Milling & Bread-baking Qualities of Hard Winter Wheat Varieties 2002 Kansas Update", Kansas State University. www.oznet.ksu.edu/library/grsci2/MF1077.pdf
- Engle D.A., Morris C.F. 2002. "Genotype & environment study, 6 year summary, 1997-2002 crop years" USDA Western Wheat Quality Laboratory. www.wsu.edu/~wwql/reprints/1997.pdf

Soft White Winter Wheat

MOST DESIRABLE

Brundage 96 MJ-9

DESIRABLE

Basin Lambert

Brundage Rod

Foote** Yamhill**

Hill81

ACCEPTABLE

Macvicar Tubbs

Madsen Stephens

Malcolm** Weatherford

ORCF101***

LEAST DESIRABLE

Daws (low cookie diameter)

WPB470 (low milling score and cookie diameter)

White Club Wheat

MOST DESIRABLE

Chukar Hillar

DESIRABLE

ARS98237 Edwin

Tres

ACCEPTABLE

Bruhler Coda

Rely Temple

LEAST DESIRABLE

Rhode (low milling yield)

Position within each grouping does not indicate relative rankings of varieties. Gene SWW was not included because of limited data but preliminary analyses indicate that Gene has acceptable quality.
 **Only a single year of data available in the reduced G&E study.
 ***t-scores calculated from 3 years of data from Pendleton plus data from 5 additional Oregon sites in 2002.