

**OREGON AGRICULTURAL EXPERIMENT STATION  
OREGON STATE UNIVERSITY  
CORVALLIS, OR 97331**

**OR9801757  
Soft White Winter Wheat**

OR9801757 is a semidwarf soft white winter wheat from the cross: 'Yamhill/Hyslop//Stephens/3/OR7946/Hill//Hill (as selection WSQ910137) /4/Sambo/Heine 4//Stephens/3/Wattines//Yamhill/Hyslop' made in 1992. Of interest among these contributing parents are 'Sambo', a winter wheat from Netherlands, and 'Wattines', a winter wheat from France. OR9801757 has been noted for its superior end-use quality for the soft white market class and superior agronomic performance in field trials conducted in Sherman and Gilliam counties of North Central Oregon. OR9801757 is an F5-derived line, identified in 1997 as a headrow and designated as OR9801757 in 1998.

End-use quality of OR9801757 has been evaluated annually through the USDA-ARS Western Wheat Quality Lab since 1998. Over 10 locations of field trials, OR9801757 had significantly lower average grain protein of 9.9%, as compared with Stephens or Madsen at 11.9 and 11.8% respectively. Average grain test weight was similar to Madsen at 60.4, higher than that for Stephens at 58.8. OR9801757 has average kernel weight greater than Madsen, 37.6 vs 34.4 gm per 1000, but slightly less than Stephens at 39.5 gm.

OR9801757 is unique in that it has very soft kernel texture. When compared using the Pertin Single Kernel Characterization System, OR9801757 has average grain hardness of 16.2 units, averaging 16 points lower than Stephens and 25.8 points lower than Madsen. OR9801757 has high average break flour yields when milled on a modified Quadromat Senior experimental grain mill. Break flour yield is an important indicator of soft wheat quality. In paired comparisons with Stephens and Madsen from grain of 10 test sites, OR9801757 has 5.3% and 2.8% higher break flour yield, respectively. In paired comparisons with Tubbs over 7 sites, OR9801757 has 4.7% higher break flour yield. Total flour yield, flour ash, and Milling score did not differ significantly from the check varieties, however. The low grain protein of OR9801757 contributed to low average flour protein concentration of 8.5% as compared with Stephens and Madsen at 10.4% and 10.2%, respectively. OR9801757 has normal amylose starch type, but higher starch viscosity than Stephens and Madsen. OR9801757 has superior baking quality, as indicated by higher values for cookie diameter and sponge cake volume. Cookie diameter of OR9801757 averaged 9.4 cm, approximately 0.4 cm larger than Stephens, Madsen, or Tubbs. Sponge cake volume averaged over 1330 cc, over 100 cc greater than each of the three check varieties.

OR9801757 was evaluated in Oregon breeding trials from 2001 through 2004. It is entered in the USDA-ARS Western Regional Uniform Soft Wheat Nursery for 2004. Over 28 site by year combinations from Oregon trials, OR9801757 averaged 79.8 bu/a, as compared with Stephens, Madsen, and Tubbs at 80.4, 77.7, and 82.7 bu/a, respectively. OR9801757 has had a superior grain yield record in north-central Oregon dryland performance trials. Over 13 trials conducted from 2001 to 2004, grain yield of OR9801757 averaged 49.4 bu/a, as compared with that of Gene at 48.3 bu/a. Yields of Stephens, Madsen, Tubbs, and Weatherford were 46.6, 44.5, 46.7, and 45.7,

respectively. It was ranked no lower than 4<sup>th</sup> for grain yield among entries in the Sherman county performance trials from 2001 through 2003.

Grain test weight of OR9801757 averaged 60.5 lb/bu in the Oregon trials, higher than Stephens at 59.4 lb/bu and Tubbs at 59.6 lb/bu, but similar to that of Madsen and Weatherford. Plant height of OR9801757 is taller than Stephens and Madsen, more similar to Tubbs. OR9801757 averaged 103.7 cm as compared with Stephens at 97.2, Madsen at 99.4, and Tubbs at 104.9 cm. OR9801757 has similar or earlier maturity than Stephens, averaging 139.5 days to heading as compared with 141.8 for Stephens, 144 for Tubbs, and 145 for Madsen and Weatherford. With significant drought and heat stress impacting production in 2003, the earlier maturity of OR9801757 could have been of significant benefit to its performance. As for winterhardiness or cold tolerance of OR9801757, there is no available data to characterize the selection.

In USDA-ARS field evaluations, OR9801757 has resistant reaction type and superior adult-plant resistance to stripe rust (*Puccinia striiformis*), with infection intensities less than Stephens, Madsen, or Tubbs. OR9801757 is susceptible to strawbreaker footrot (*Pseudocercospora herpotrichoides* (Fron.) Deighton). It is moderately susceptible to Septoria leaf blotch (*Septoria tritici* Roberge in Desmaz.). OR9801757 has intermediate to low average ratings for reaction to crown rot (*Fusarium pseudograminearum* O'Donnell et. T. Aoki sp. nov.) under natural field infections, suggesting it is more tolerant to the disease than Stephens or Tubbs. OR9801757 is moderately tolerant to Cephalosporium stripe (*Cephalosporium gramineum* Nis. & Ika.), with reaction similar to Weatherford or Madsen, but with lower infection ratings than Stephens or Tubbs.

In fall 2003, approximately 1,500 heads of OR9801757 were threshed, screened for seed color and seed size, and provided to Washington Foundation Seed for production of Breeder seed. These were planted as individual headrows and off-type rows were removed prior to bulk harvest of Breeder seed.

If approved for release, OR9801757 will be submitted for Plant Variety Protection with the Title 5 option. OR9801757 is proposed for released to the industry through a non-exclusive licensing program to promote identity preserved production and marketing of the variety. Foundation and Registered seed stocks may be sold only to those granted a license by OSU. Certified seed stocks may be used to plant a single commercial crop and may not be used to generate seed stocks for replanting. Seed stocks that fail to meet certification standards cannot be sold as seed, nor used as seed.

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