

FACT SHEET

Selection OR880172

Soft White Winter Wheat

PROPOSED NAME: **FOOTE**

W.E. Kronstad, M.L. Verhoeven, R. Knight, and D. Kelly

Description

Selection OR880172 is a soft white common winter wheat. It is a semi-dwarf with white, stiff straw. The spike is awned, oblong, dense, and nodding. Glumes are glabrous, white, mid long; shoulders narrow, wanting; beaks narrow, acuminate, 2 to 3 mm. Awns are 2 to 7 cm long. The kernels are white, midlong, soft, elliptical with midsize germ and a narrow, shallow crease. The brush is small.

Pedigree and History

Selection OR880172 was developed from a complex cross Heima//Kalyansona//Bluebird/3/WWP7147, F₁/4/D6301/Heines VII//ERA/3/Buckbuck. The initial single cross was made by International Maize and Wheat Improvement Center scientists in Mexico. Subsequent crosses were carried out at the Hyslop Crop Science Laboratory. Thus, the pedigree of OR880172 represents a combination of winter and spring type parents. The original selection was obtained from F₃ head row, which traces back to an individual F₂ plant. Additional selections were made in F₄, F₅, with phenotypically similar F₆ head rows bulked for yield evaluation. Following yield, disease and quality evaluations, head rows were again reselected in 1996 for seed increase. Additional spikes were selected and sent to the crop improvement program at Washington State University for the production of breeders seed.

Area of Adaptation

Selection OR880172 is widely adapted to most winter wheat growing areas in the Pacific Northwest; however, it is superior yield-wise to existing cultivars only in the Willamette Valley and areas where Septoria tritici is a major limiting factor.

Disease Reaction

Selection OR880172 is resistant to Leaf Blotch (Septoria tritici), Mildew (Erysiphe graminis f. sp. tritici), Stripe Rust (Puccinia striiformis), Leaf Rust (Puccinia recondita f. sp. tritici), Columbia Basin Foot Rot (Pseudocercospora herpotrichoides), and Common Bunt (Tilletia caries) and T. foetida) (Table 1).

Agronomic Traits

Data for selected agronomic traits are provided in Table 2. When compared to Stephens and Madsen, Selection OR880172 is similar to Stephens in heading date, taller than either cultivar, slightly weaker strawed, lower phenotypic score on overall appearance, and similar to Stephens in winterhardiness.

Yield Performance

Selection OR880172 has been in Oregon elite yield trials for five years. As seen in Table 3, OR880172 is adapted to the Willamette Valley where it has yielded, on the average, 10 bushels more per acre than Madsen and 38 bushels more than Stephens. It has yielded less than Stephens and Madsen at both the Rugg's and Moro eastern Oregon sites.

OR880172 has been in the regional nursery grown at experimental sites in Washington, Idaho and Oregon for three years. Data for two years are provided in Table 4. When compared to the check Stephens overall locations, OR880172 in both 1994 and 1995, has yielded slightly less.

Quality Data

Selection OR880172 is very similar in its overall quality properties to Stephens and Madsen. Despite considerable genotype x environment interactions involving these traits, OR880172 has softer kernels and superior sponge cake volume and sponge cake score. The quality information was provided by the Western Regional Wheat Quality Laboratory located at Pullman, Washington.

Table 1. Disease data of OR88172 compared with Stephens and Madsen.

Variety	Septoria	Foot rot	Mildew	Stripe rust	Leaf rust	Common bunt
Stephens	7	M	R	MR	MR	R
Madsen	4	R	R	R	MR	R
OR880172	1	M	R	R	MR	R

Table 2. Agronomic data for OR880172 compared with Stephens and Madsen.

Variety	Heading Julian date *	Height cm	Lodging Corvallis	Ag. Score	Winterhardiness (1-5)**
	4 yr Average	3 yr Average			
Stephens	139	102	0	2	3
Madsen	144	102	0	2	2
OR880172	140	114	5	3	3

* Julian date = number of days from January 1

** 1 being the most winter hardy

Table 3. Yield (bu/acre) of OR880172 compared with Stephens and Madsen.

Variety	# of yrs tested	Rugg's	Corvallis	Moro
Stephens	5	103	89	89
Madsen	5	116	117	84
OR880172	5	98	127	68

Table 4. Data from the Western Regional Uniform White Winter Wheat Nursery.

Variety	1994 Bu/ac	1995 Bu/ac
OR880172	94.4	98.4
Stephens	97.2	100.0

Table 5. Grain quality, milling quality and end-use quality of OR880172 compared with Stephens and Madsen.

OR880172 Analysis of Variance

Means, LSD, Probability and Number of Paired Comparisons by Genotype

Grain Quality

Genotype	Test weight	Grain protein	Grain hardness
OR880172	61.5	10.8	26
STEPHENS	60.8	10.3	34
LSD	0.9	0.6	5.0
P-VALUE	0.14	0.10	0.02
N	13.0	11.0	5.0
OR880172	60.9	10.6	25
MADSEN	61.1	10.7	40
LSD	0.4	0.8	3.0
P-VALUE	0.38	0.63	<.01
N	7.0	7.0	5.0

Milling and Flour Quality

Genotype	Flour yield	Flour ash	Milling score	Flour protein	Flour Viscosity
OR880172	73.5	0.36	88.0	9.0	76
STEPHENS	73.6	0.38	86.8	8.9	77
LSD	0.8	0.02	2.0	0.5	44
P-VALUE	0.86	0.06	0.23	0.51	0.90
N	12	12	12	12	2
OR880172	74.1	0.37	87.7	9.1	76
MADSEN	74.9	0.38	88.9	9.2	81
LSD	1.0	0.03	2.0	0.7	44
P-VALUE	0.06	0.47	0.18	0.71	0.40
N	6	6	6	6	2

End-Use Quality

Genotype	Mixograph water absorption	Cookie diameter	Top grain score	Sponge cake volume	Sponge cake score
OR880172	54.1	8.7	5.5	1263	72
STEPHENS	54.5	8.6	6.1	1219	68
LSD	1.5	0.2	1.1	52	3
P-VALUE	0.54	0.37	0.31	0.09	0.02
N	12	12	11	8	8
OR880172	54.1	8.6	5.2	1259	71
MADSEN	54.7	8.4	5.3	1204	67
LSD	1.7	0.3	1.7	98	6
P-VALUE	0.38	0.27	0.80	0.19	0.13
N	6	6	6	5	5