

MACVICAR

Soft White Winter Wheat

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'MacVicar' (PI 552427) is a common soft white winter wheat developed by Oregon State University. The variety was jointly released in 1992 with the University of Idaho and Washington State University as a replacement for Stephens, particularly in the irrigated Treasure Valley of southwestern (SW) Idaho and eastern (E) Oregon. Some advantages over Stephens are higher yield and lower protein content. It also offers disease resistance that differs from Stephens, the most commonly grown wheat in this production area.

Variety Description and Adaptation

MacVicar is a common, awned, stiff strawed semidwarf with lax heads and white chaff. MacVicar is particularly well adapted to the irrigated Treasure Valley of SW Idaho and Malheur County, Oregon. MacVicar apparently does not have as much of a yield advantage over Stephens in southcentral (SC) and southeastern (SE) Idaho, or in northern (N) Idaho.

MacVicar averaged 8 bushels per acre more than Stephens across 13 SW Idaho Extension trials (table 1) and 4 bushels per acre more than Malcolm. MacVicar averaged 2 bushels per acre more than Stephens across nine Extension trials in SC and SE Idaho (table 2), but less than Malcolm. Stephens averaged 3 bushels per acre more than MacVicar in the breeder trials at Aberdeen (table 3). In N Idaho, MacVicar averaged 4 bushels per acre more in yield than Stephens (table 4).

In irrigated southern Idaho Extension trials, MacVicar averaged only 0.2 pound per bushel more in test weight than Stephens in SW Idaho, but 0.6 pound per bushel more than Stephens in SC and SE Idaho. The test weight for MacVicar was also more than Stephens in the breeder nurseries at Aberdeen. In contrast, MacVicar averaged 1.2 pounds per bushel less test weight than Stephens in northern Idaho.

Table 1. Agronomic data for irrigated soft white winter wheat varieties in southwestern Idaho, 1989-92 (13 location years).

Variety	Yield (bu/acre)	Protein content (%)	Test weight (lb/bu)	Height (inches)	Lodging (%)
MacVicar	119	10.7	58.6	36	3
Stephens	111	11.4	58.4	35	7
Malcolm	115	11.0	58.2	36	4

Table 2. Agronomic data for irrigated soft white winter wheat varieties in southcentral and southeastern Idaho, 1990-92 (9 location years).

Variety	Yield (bu/acre)	Protein content (%)	Test weight (lb/bu)	Height (inches)	Heading date	Lodging (%)
MacVicar	119	10.4	60.0	35	June 5	3
Stephens	116	11.3	59.4	34	June 4	0
Malcolm	124	10.4	60.2	34	June 4	0
Daws	115	10.0	60.0	34	June 7	2

Table 3. Agronomic data for irrigated soft white winter wheat varieties at Aberdeen in southeastern Idaho breeder nurseries, 1989-92 (4 location years).

Variety	Yield (bu/acre)	Test weight (lb/bu)	Height (inches)
MacVicar	136	60	37
Stephens	139	59	37
Malcolm	147	59	37
Kmor	148	58	37
Madsen	144	60	39
Rod	147	59	38

Table 4. Agronomic data for dryland soft white winter wheat varieties in northern Idaho, 1989-91 (11 location years).

Variety	Yield (bu/acres)	Protein content (%)	Test weight (lb/bu)	Height (inches)	Winter survival (%)
MacVicar	107	9.4	56.4	34	48
Stephens	103	9.5	57.6	34	37
Madsen	105	10.5	57.6	35	61

MacVicar is similar to Stephens and Malcolm in maturity and winterhardiness. MacVicar breaks dormancy with early spring warm temperatures much the same as Stephens. MacVicar is slightly taller than Stephens. It has smaller kernels than Stephens and will require less seed than Stephens to establish the same population. Seeding rates of MacVicar can be reduced 10 to 15 percent from those used for Stephens depending on the actual seed size.

Disease Resistance

MacVicar offers sources of disease resistance that differ from Stephens and other commonly grown soft white winter wheats. It has stripe and leaf rust resistance comparable to Stephens but may be more susceptible to powdery mildew. MacVicar is moderately resistant to *Pseudocercospora* foot rot. MacVicar is susceptible to stem rust, common and dwarf bunt, *Septoria*, *Fusarium* foot rot, and *Cephalosporium* stripe. MacVicar is no more susceptible than Stephens to the problems of early plantings including take-all, Wheat Streak Mosaic, and Barley Yellow Dwarf.

Milling and Baking

The protein content of MacVicar averaged 0.7 percent less than Stephens in SW Idaho and 0.9 percent less in the SC and SE Idaho Extension trials. MacVicar flour protein averaged 0.7 percent lower than Stephens in the Aberdeen breeder nurseries. The protein content of MacVicar and Stephens was similar in northern Idaho. The lower protein content of MacVicar under irrigation should allow Idaho wheat growers to produce high yields while still meeting the low protein preference (less than 10.5 percent) of the Pacific Rim market. In southern Idaho, it is doubtful that growers can produce Stephens consistently with as low a protein content.

Milling and baking quality for MacVicar is acceptable and similar to Stephens. MacVicar has whole grain protein intermediate between Nugaines and Stephens. Flour protein ranged as low as Nugaines and substantially less than Stephens. Hardness tends to be higher than Stephens whereas the flour yield, milling score, and cookie diameter tend to be lower. Cake volume was excellent. Sponge cake score was higher than and viscosity was comparable to Stephens.

Table 5. Milling and baking quality of irrigated soft white winter wheat varieties at Aberdeen, 1989-92.

Variety	Flour protein (%)	Milling yield ^a (%)	Cookie diameter ^a (cm)
MacVicar	8.8	67.2	8.71
Stephens	9.5	67.7	8.77
Malcolm	8.0	68.1	8.86

^aLarger numbers are preferred, but all are acceptable.

Availability of MacVicar Seed

Breeder seed of MacVicar will be maintained by Oregon State University, but foundation seed will be maintained by the Idaho Agricultural Experiment Station. Requests for foundation seed should be directed to Coordinator, Foundation Seed Program, College of Agriculture, University of Idaho, Kimberly Research and Extension Center, 3793 N. 3600 East, Kimberly, Idaho 83341.

History

MacVicar was derived from a complex set of crosses. The parentage is 'Yamhill'/'McDermid' / 2/'Triticum spelta, var. Alba/3/'Suwon 92' / 'Roedel' / 4/NB 68513/'Hyslop' / 2/'Backa'. The F1 from the last cross was grown in 1975, row 336 at Hermiston and was subsequently tested as the designation ORFW75336. MacVicar was selected from a single headrow in 1986 and increased in 1989. The 1989 headrows were harvested as breeder's seed in 1990. The variety was named for Dr. Robert MacVicar, former president of Oregon State University.

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