Washington Agricultural Research Center
Washington State University
Pullman, Washington

and

United States Department of Agriculture
Agricultural Research Service
Washington, D.C.

and

Oregon Agricultural Experiment Station
Oregon State University
Corvallis, Oregon

RELEASE OF SCARLET (PI601814) A HARD RED SPRING WHEAT CULTIVAR

The Washington Agricultural Research Center, Agricultural Research Service, United States Department of Agriculture, and the Oregon Agricultural Experiment Station announce the joint release of 'Scarlet', a hard red spring (HRS) wheat (*Triticum aestivum L.*). K.K. Kidwell, Washington State University's Spring Wheat Breeder and Geneticist, selected Scarlet as an F_8 line from a cross generated by Dr. C.F. Konzak, emeritus professor. Scarlet is being released as a replacement for 'Butte 86' in the semi-arid production regions of the Pacific Northwest because of its tall plant type, high yield potential and superior end-use quality.

Scarlet (WA7802, K9200106) was derived from the cross Tifton 3725/Walladay/3/Fielder//Bronz/Koeltz-7941 S.5/5/Henry/Karn 90, S.90//Burt/Onas 52/3/ Lemhi 66/4/Yaktana 54A*4//Norin 10/Brevor 14/6/Tifton 3725/Walladay/3/Fielder//Bronz/Koeltz-7941 S.5/7/Tecumseh/5/Tifton 3725/Walladay/4/Bezostaja-1//(14x53-101)/Burt #4/3/Burt/Kenya Farmer 70136. It was advanced to the F_5 generation through a modified pedigree-bulk breeding method where selection was made for test weight, plant height, and general adaptation. Scarlet is a tall, single gene semidwarf with mid-season maturity; lax, fusiform head type with white awns; white glumed spikes with midlong to long kernels that are red, hard, and ovate; midsize germ with a midwide, middeep crease, rounded cheeks and a midsize, midlong brush.

Scarlet is moderately resistant to stripe rust and powdery mildew, and is resistant to leaf rust. Based on parentage, this variety should be susceptible to the Hessian fly and the Russian wheat aphid; however, this has not been confirmed to date.

Grain yields of Scarlet typically equal or exceed those of other hard red spring wheat entries in dryland field evaluations conducted at various locations across the Pacific Northwest. In 55 tests conducted over 5 years in Washington State, Scarlet generally produced from 330 to 670 kg/H more grain than Butte 86, depending on location.

Test weights of grain from Scarlet typically are 6.5 -13 g/l lower than those of Butte 86; however, Scarlet has a significant test weight advantage over 'Spillman'. Scarlet is typically 2.5-7.5 cm shorter than Butte 86 but 5-10 cm taller than 'Westbred 926' and Spillman. Tall plant types are desirable in the semi-arid production region for ease of harvest.

Grain protein contents of Scarlet are similar or higher than those of Butte 86 in the semi-arid region to which this variety is targeted for production. However, grain protein contents of Scarlet are low when planted in locations receiving more than 14 inches of precipitation annually. Without proper fertility management, Scarlet is unlikely to achieve grain protein contents of $\geq$14% under dryland production conditions in areas receiving high levels of precipitation.

Based on extensive quality tests by the USDA-ARS Western Wheat Quality Lab, Scarlet has superior milling quality compared to most of the HRS varieties produced in the Pacific Northwest. It also has a significantly larger bread loaf volume than Butte 86.

Scarlet is best adapted for production in the semi-arid region of eastern Washington, and the grain yield and end-use quality advantage of this variety compared to Butte 86 is driving its release.

Breeder and foundation seed of Scarlet will be maintained by the Washington State Crop Improvement Association under supervision of the Department of Crop and Soil Sciences and the Washington State Agricultural Research Center. The proposed release date for publicity shall be on the date of final signature of the release notice. Genetic material of this release was deposited in the National Plant Germplasm System where it is available for research purposes, including the development and commercialization of new varieties. PVP status of this variety is pending.

James R Carlson — Apr 20, 1999

Director
Washington Agricultural Research Center
Washington State University
Pullman, WA

Date

Edward B. Knipling — APR 07 1999

Administrator for Agricultural Research Service
United States Department of Agriculture
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Date

R. E. Witters — 3-17-99

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Mr. Greg Vollmer
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December 6, 1999

Dear Greg,

The purpose of this letter is to provide you with a supplemental description for the hard red spring wheat variety 'Scarlet'. The variety description for Scarlet should include a tolerance for white seed in the current breeder and foundation seed lots. Based on its pedigree, the low level of white seed in Scarlet may be a varietal characteristic. Three white seeds per pound were detected in current breeder seed lots of Scarlet. No more than 6 white seeds per pound of seed may be present in classes of certified seed of this variety.

Scarlet is uniform for plant type, maturity and seed storage protein pattern. Other variation from the original description (see attachment) of this variety should not be considered true-to-type. Washington State University will make every reasonable effort to keep white seed numbers in Scarlet to negligible levels.

The Washington State Crop Improvement Association does an outstanding job of producing high quality, pure foundation seed of WSU wheat varieties, and I sincerely appreciate your efforts to maintain this high standard of excellence. Please contact me at your convenience if you have any further questions concerning this supplemental description of Scarlet.

Best regards,

Kimberlee K. Kidwell

Dr. Kimberlee K. Kidwell
Asst. Professor,
Spring Wheat Breeder and Geneticist

cc. J. Carlson
S. Dofing