

WSCIA Foundation Seed

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Sent: Friday, June 07, 2002 12:50 PM
Subject: It is official ...

WA007824, formerly known as 'Tara' has officially been renamed 'Tara 2002'. Al Burgoon, from the Federal Seed Lab, approved the name Tara 2002 earlier this week via email. Mark Hermeling from the PVP office also approved the new name today via phone. The Crop Science galley proofs for the publication of the registration also have been changed to reflect the new name. From this day forth, WA007824 will be known as 'Tara 2002'.

I sincerely apologize for the inconvenience. The name approval procedure is now crystal clear to me so this shouldn't happen again. FYI: The names Eden and Hollis have officially been approved for use. WA7902 has been named Eden, and if approved for final release, WA7859 will be named Hollis.

KK

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9/17/02

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and

Idaho Agricultural Experiment Station
University of Idaho
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and

Oregon Agricultural Experiment Station
Oregon State University
Corvallis, Oregon

and

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

**RELEASE OF TARA (PI617073)
A HARD RED SPRING WHEAT CULTIVAR**

The Washington Agricultural Research Center, Agricultural Research Service, United States Department of Agriculture, Idaho Agricultural Experiment Station and Oregon Agricultural Experiment Station announce the joint release of 'Tara', a hard red spring (HRS) wheat (*Triticum aestivum* L.). K.K. Kidwell, Washington State University's Spring Wheat Breeder and Geneticist, selected Tara as an F₅ head row from a cross generated by Dr. C.F. Konzak, emeritus professor. Tara was released as a replacement for 'Westbred 926' in the intermediate to high rainfall (>400 mm of average annual precipitation), non-irrigated wheat production regions of Washington State based on its tolerance to the Hessian fly (*Mayetiola destructor* (Say)), high grain yield and superior end-use quality.

Based on 9 site years of data in the target production zone, Tara (5644 kg ha^{-1}) produced significantly more grain than Westbred 926 (5234 kg ha^{-1}), 'Jefferson' (5409 kg ha^{-1}) and 'Scarlet' (5301 kg ha^{-1}). Grain volume weight of Tara averaged 782.5 g l^{-1} , which was significantly higher than those of Jefferson (776.1 g l^{-1}), Westbred 926 (764.5 g l^{-1}) and Scarlet (770.9 g l^{-1}). Thousand kernel weight averages of Tara, Westbred 926, Jefferson and Scarlet were 46.4 g, 49.8 g, 37.5 g and 39.2 g, respectively. The average plant height of Tara was 86 cm, and Tara was 5 cm taller than Westbred 926 (81 cm) and 1 cm taller than Jefferson (85 cm) and the same height as Scarlet (86 cm). Lodging percentages of Tara were comparable with those of Westbred 926 and Jefferson, but lower than those of Scarlet. Tara headed 2 days, 3 days and 4 days earlier than Westbred 926 (169 julian days), Jefferson (170 julian days) and Scarlet (171 julian days), respectively.

In tests conducted by the USDA-ARS Western Wheat Quality Laboratory in Pullman, WA using grain produced in breeding and commercial variety testing trials in Washington State from 1996 through 2000, grain protein concentration of Tara (13.4 %) was consistently lower than Westbred 926 (13.8 %) but higher than those of Jefferson (13.2 %) and Scarlet (13.1%). Flour yield of Tara (67.0 %) was higher than Westbred 926 (66.2 %), but lower than those of Jefferson (67.7%) and Scarlet (67.6 %). Flour ash content for Tara (0.382 %) was significantly lower than that for Westbred 926 (0.420 %), similar to that for Jefferson (0.390) and significantly higher than that for Scarlet (0.365 %). Tara had a higher average milling score (82.3) than Westbred 926 (79.6) but lower than those for Jefferson (82.5) and Scarlet (83.7). The mixing time for Tara (5.63 min) was significantly longer than those of Westbred 926 (4.20 min) and Scarlet (4.48 min) but shorter than that for Jefferson (6.00 min). Average pup loaf volume for Tara (988 cm^3) was larger than those for Westbred 926 (977 cm^3), Jefferson (886 cm^3) and Scarlet (945 cm^3) when the baking quality of flour extracted from grain samples collected across production regions were compared.

The Washington State Crop Improvement Association under supervision of the Department of Crop and Soil Sciences and the Washington State Agricultural Research Center will maintain breeder and Foundation seed of Tara. 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. U.S. plant variety protection status for this cultivar is pending.

Tara, tested under the experimental designations WA007824, K9300092 and K88437, is a F_{4,5} head row selection derived from the cross KODIAK/SPILLMAN/WPB00906, which was made in 1987. The following modified pedigree-bulk breeding method was used to advance early generation progeny. Bulk seed (30 g) from several F₁ plants was used to establish an F₂ field plot. Approximately 100 heads were selected at random from individual F₂ plants, and a 40 g sub-sample of the bulk seed was used to establish a single F₃ plot. Seed from the F₃ plot was bulk harvested, then a 60 g sub-sample was used to establish an F₄ field plot. Single heads from 150 F₄ plants were threshed individually to establish F₅ head row families. Following selection for general adaptation, plant height and grain appearance, seed from 30-50 plants within each selected head row was bulk harvested to obtain F₆ seed for grain yield assessment. F₁, F₂, F₄ and F₅ progeny were advanced in field nurseries in Pullman, WA, whereas F₃ progeny were advanced at the Lind Dryland Experiment Station in Lind, WA. Breeders seed of Tara was produced as a reselection, based on phenotypic uniformity, of 1900 F₁₀ head rows grown with irrigation in Othello, WA in 2000.

Tara is an intermediate height, single-gene semidwarf with lax, fusiform heads with white awns. It has medium length, white glumed spikes with elliptical kernels that are red, hard, and smooth texture. Seed of Tara has a round germ with a narrow, shallow crease, rounded cheeks and a short, non-collared brush.

Among the major pests of spring wheat in the Pacific Northwest, USA, Tara has moderate non-race-specific, high-temperature, adult plant resistance to stripe rust (caused by *Puccinia striiformis* Westend.) races common in North America, based on results from non-inoculated and inoculated field disease screening trials conducted in Mt. Vernon, WA and Pullman, WA for four crop years. Tara also has moderate adult-plant resistance to leaf rust (caused by *P. recondita* Rob. ex Desm.). Based on controlled environment insect screening trials conducted at Kansas State University and University of Idaho, as well as field trials conducted in Walla Walla, WA and Pullman, WA, Tara is resistant to the Hessian fly. Based on pedigree and natural field infestation ratings from Pullman, WA, Tara is susceptible to the Russian wheat aphid (*Diuraphis noxia* (Mordvilko)).

Tara was evaluated in replicated field trials under fallow, non-irrigated annual crop and irrigated conditions in Washington, Oregon and Idaho from 1996 to 2000. Grain yields of Tara typically equal or exceed those of other hard red spring wheat entries in non-irrigated field production. In 41 tests conducted over 3 years across agronomic production regions in Washington State, the grain yield averages of Tara, Westbred 926, Jefferson and Scarlet were 4166 kg ha⁻¹, 3910 kg ha⁻¹, 4240 kg ha⁻¹ and 4152 kg ha⁻¹, respectively. Tara produced from 81 to 410 kg ha⁻¹ more grain than Westbred 926, depending on location.



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March 25, 2001

Dear Greg,

The purpose of this letter is to provide you with a supplemental description for the hard red spring wheat variety 'Tara'. The variety description for Tara should include a tolerance for white seed. Based on its pedigree, the level of white seed in Tara is a varietal characteristic that has a genetic basis.

Tara breeder seed was first produced in 1999. The field was not uniform and the initial seed lot contained white wheat (amount not quantified). This seed lot was not used for further seed increase. Heads were selected from the 1999 field prior to harvest. Single heads were threshed and inspected for kernel color prior to planting in 2000. The 2000 breeder seed lot contained at least 33 white seeds per lb. (WSDA test), however evaluation by WSCIA showed white seed at least 43 per pound using NaOH and more based on visual observation. The foundation seed produced from the 2000 breeder seed contained 57 white wheat seed per pound (WSDA test). Heads were selected from the 2000 breeder seed field prior to harvest. Single heads were threshed and inspected for seed color and planted in 2001. The third (2001) breeder seed production continued to exhibit white wheat, though at a lower level than previously observed.

Tara contains white wheat that should be considered a variant within the variety. The variety description for Tara will include a variant description of up to 1% of white wheat for all classes of certified seed. Tara 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.

Sincerely,

Dr. Kimberlee K. Kidwell
Asso. Professor,
Spring Wheat Breeder and Geneticistcc. R. Cavalieri
J. Burns