Registration of 'Iona' Wheat

'Iona' hard red spring wheat (Triticum aestivum L.) (Reg. no. CV-918, PI 6178734) was released in April 1999 by the Idaho Agricultural Experiment Station in cooperation with the Oregon and Washington State Agricultural Experiment Stations. Iona is a tall, semi-soft wheat adapted to rainfed production at elevations above 1000 m in the intermountain West of the USA. Iona was released because of its excellent grain yield and end-use quality.

Iona was derived from the 1989 cross A89232S with the pedigree Idaho 367x‘Klasic’. Klasic (PI 486139) is a privately developed hard white spring wheat adapted to the western USA. Idaho 367 was derived from the cross Idaho 270/Idaho 134, where Idaho 270 had the pedigree ‘Sonora 64’x‘Winata’/‘Moran’/3x‘Florida’/‘Thatcher’/‘Klasic’/‘Klisc’. Idaho 134 had the pedigree ‘Borah’/3x‘Illinois’/100/‘Lex’/‘Cheyenne’/‘Turkey’/‘SM6’/2x‘Istan’/Utah 175a–53/3x‘Burt’/3x‘CI 13438’ and Idaho 134 had the pedigree ‘Borah’/3x‘Ili6-100’/‘Teocanto Pinto Precios’/Sonora 64. A89232S was advanced by the bulk method of breeding from the F2 to F5 generation in field plantings at Aberdeen. In the F3 generation, heads were selected from short plants and planted as F4 seeds in 1991. From these head selections, the single headrow selection A89232S-3 was bulked and advanced to rainfed and irrigated yield trials in southeastern Idaho for 3 yr. In 1995, A89232S-3 was designated ID0492 and F3:8 seed was entered into the Western Regional Spring Wheat Nursery for 3 yr of testing (1995–1997). In 1996, the milling and baking quality of ID0492 was evaluated by the Pacific Northwest Wheat Quality Council. In 1996, 100 F8:9 head selections were grown at Teton, ID, and selected for uniform plant type. Seed from headrows that were true to type were harvested and planted at Teton in 1998 to form breeder seed.

Iona is most similar in appearance to the cultivar Probrand 751 (PI 486144). Iona has a nonpigmented coleoptile and erect juvenile growth. Iona has a recurved flag leaf and an awned, curved, mid-dense head that is white-chaffed at maturity. Iona is 90 cm tall, 10 cm taller than ‘Westbred 926’, and 10 cm shorter than ‘Amidon’ (PI 527682). Iona is midseason spring wheat, maturing in southeastern Idaho environments at Day of Year174, approximately 1 day later in heading than Westbred 926 and 2 days earlier than Amidon. In irrigated trials, Iona is more prone to lodging than Westbred 926, yet less prone than Amidon. Seed of Iona is dark red, hard, ovate, and plump. The kernel shape is similar to Klasic, but has a seed weight of approximately 35 mg, 3 mg per kernel lighter than Klasic.

On the basis of field evaluations in Washington and Idaho, Iona has adult plant resistance to stripe rust [caused by Puccinia striiformis (Westend.)], and moderate susceptibility to leaf rust [caused by P. triticina (Eriks.)]. On the basis of field evaluations at Aberdeen, Iona is susceptible to the Russian wheat aphid [Diuraphis noxia (Mordvilko)]. In Moscow, ID, field trials, Iona is susceptible to northern Idaho populations of the Hessian fly [Mayetiola destructor (Say)] comprised of biotypes GP, E, F, G.

Iona’s combination of grain yield, test weight, and protein concentration compares favorably with current hard red spring wheats, particularly in rainfed production. In 13 site-years of replicated, rainfed trials in southeastern Idaho from 1994 to 1998, Iona had a grain yield of 3.04 Mg ha⁻¹ compared with 2.95 Mg ha⁻¹ for Amidon, 2.98 Mg ha⁻¹ for Westbred 926, 3.16 Mg ha⁻¹ for ‘Jefferson’ (PI 603040), and 3.29 Mg ha⁻¹ for Probrand 751. In the same trials, Iona had a test weight of 766 kg m⁻³ similar to Jefferson (769 kg m⁻³) and significantly higher than Amidon, Westbred 926, and Probrand 751 (755, 759, and 751 kg m⁻³, respectively). In 5 yr of southeastern Idaho trials, Iona had a high flour protein concentration of 126 g kg⁻¹, similar to Amidon, and Westbred 926; Iona had 13 g kg⁻¹ and 4 g kg⁻¹ higher flour protein concentration than Probrand 751 and Jefferson, respectively. In 5 yr of baking evaluations by the University of Idaho Wheat Quality Laboratory, Iona had a high milling yield (720 g kg⁻¹), similar to Probrand 751 (720 g kg⁻¹) and Jefferson (716 g kg⁻¹), and significantly higher than Amidon (705 g kg⁻¹) and Westbred 926 (692 g kg⁻¹). In evaluations of the milled flour, Iona has strong dough mixing characteristics with 0.8 min longer times to mixograph peak time than Amidon and Probrand 751 and similar mixograph peak times as Jefferson and Westbred 926. Bread loaf volume of Iona (1008 mL) is similar to Amidon (948 mL), Probrand 751 (983 mL), Jefferson (989 mL), and Westbred 926 (1002 mL).

Seed of Iona will be maintained by the Idaho Agricultural Experiment Station. Foundation seed may be obtained by contacting the corresponding author.

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Registration of ‘Tara 2000’ Wheat

‘Tara 2000’ hard red spring wheat (Triticum aestivum L.) (Reg. no. CV-919, PI 617073) was developed by the Agricultural Research Center of Washington State University in cooperation with the Agricultural Experiment Stations (AESs) of the University of Idaho and Oregon State University and USDA-ARS. Tara 2000 was jointly released by the AESs of Washington, Idaho, and Oregon and the USDA-ARS in April 2002. Tara 2000 was released as a replacement for ‘Westbred 926’ in the intermediate to high rainfall (400 mm of average annual precipitation), nonirrigated wheat production regions of Washington State on the basis of its tolerance to the Hessian fly [Mayetiola destructor (Say)], high grain yield, and superior end-use quality.

Tara 2000 was tested under the experimental designations WA0007824, K900092, and K88437, which were assigned through progressive generations of advancement. Tara 200 is a F₄₆ head row selection derived from the cross ‘Kodik’ (PI 535008)/‘Spillman’ (PI 506350)/‘Westbred 906’ (PI 483455), which was made in 1987. A modified pedigree-bulk breeding method was used to advance early generation progeny. Bulked seed from F₃ plants was used to establish an F₄ field plot. Seeds from approximately 100 randomly selected heads from individual F₄ plants were bulked together to establish a single F₅ plot that was bulk harvested to establish an F₆ field plot. Single heads from 150 F₅ plants were threshed individually to establish F₆₄ head row families. Following selection for general adaptation, plant height, and grain appearance, seeds from all plants (30–50) within each selected head row were bulk harvested to obtain F₆₄ seed for grain yield assessment. F₇₄, F₈₄, and F₉₄ progeny were advanced in field nurseries at Pullman, WA, whereas F₁₀ progeny were advanced at the Washington State University Dryland Experiment Station at Lind, WA. Breeder seed of Tara 2000 was produced as a reselection, on the basis of phenotypic uniformity, from 1900 F₉ head rows grown with irrigation at Othello, WA, in 2000.