

IDAHO AGRICULTURAL EXPERIMENT STATION
University of Idaho
Moscow, ID

and

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Washington, D.C.

RELEASE OF VANDAL SPRING WHEAT (ID0341)

University of Idaho and the United States Department of Agriculture Research Service announce the release of Vandal hard red spring wheat (Triticum aestivum L.). Vandal is a semi-dwarf wheat developed for high yield environments in the Pacific Northwest of the United States.

Vandal is a pure-line selection from the 1978 cross A78540S of CM16716-M-3M-2Y-3M-0Y/A72483S-3-2. CM16716-M-3M-2Y-3M-0Y is a CIMMYT breeding line also designated as 'Cowbird Sib' and A72483S-3-2 is an Aberdeen, Idaho breeding line with the pedigree McCall/Baijo 66/4/TZPP/Sonora 64/3/Lee//No. 58/Thatcher. A78540S was advanced by the bulk breeding method in the F₂ and F₃ generations. In 1981 head selections were made from the F₃ bulk and grown as F₄ headrows in 1982. The head selection from which Vandal was derived was designated A78540S-20 and tested in Southeastern Idaho yield trials from 1983 to 1985. In 1986, A78540S-20 was entered into the Tri-State Spring Wheat Nursery as advanced breeding line ID0341. ID0341 was tested in the Western Regional Spring Wheat Nursery from 1987 to 1989. Vandal is a composite of approximately 250 head selections made from ID0341 in 1988 and selected in 1989 and 1990 for uniformity.

Vandal is similar in height and tillering response to 'Westbred 906R' and 'Westbred 926'. Vandal is a long season spring wheat, heading 4 and 6 days later than 'Copper' and Westbred 906R, respectively. Leaf color is intermediate green similar to 'Borah'; anthocyanin pigmentation is absent in Vandal from stems, leaf auricles, and anthers. The flag leaves are broad and semi-erect similar in size and carriage to Westbred 926. The inflorescence of Vandal is awned, mid-dense, with short, wide, glumes which are glabrous having oblique shoulders and acuminate beaks. Chaff color of Vandal is white to yellow-white at maturity. Vandal has hard red spring seed conformation; the shape is elliptical with angular cheeks and a short, un-collared brush. The seed crease is wide and shallow similar to 'Chris'. Vandal has adult plant resistance to stripe rust (Puccinia striiformis West.) races prevalent in the Pacific Northwest. Vandal has susceptibility to the Russian wheat aphid (Diuraphis noxia Mordv.) comparable to 'Yecora Rojo', 'Borah', and Westbred 906R.

In irrigated trials at Aberdeen from 1983 to 1990, Vandal, Borah, 'McKay', and 'Pondera' had average grain yields, respectively, of 6.6, 5.9, 6.2, and 6.3 Mg ha⁻¹. Test weight for the same cultivars in those trials were 760 (Vandal), 753 (Borah), 758 (McKay), and 784 kg m⁻³ (Pondera). In the Western Regional Nursery from 1987 to 1989 across all locations, Vandal had grain yield 125%

of the long-term nursery check 'Federation'; McKay and 'Spillman' each yielded 135% of Federation. In trials at Aberdeen, Vandal had less lodging than Copper in 9 of the 11 yield trials grown from 1984 to 1990 and identical lodging scores to Westbred 926 in 6 of 6 trials grown from 1987 to 1990. Vandal has good baking quality with an average flour protein of 13.5% in Southeastern Idaho trials from 1986 to 1989. In the same trials Copper and Westbred 906R had flour protein of 12.9% and 12.7%, respectively. In bake tests conducted from 1986 to 1989 on Southeastern Idaho trials, dough mixing time and loaf volume were 2.9 minutes and 976 ml for Vandal, 2.5 minutes and 916 ml for Copper, and 2.7 minutes and 954 ml for Westbred 906R. In the Western Regional Nursery, 1987 to 1989, the average Farinograph stability for Vandal, McKay, and Spillman was 12.9, 11.4, and 5.9 minutes, respectively. Loaf volume for Vandal, McKay, and Spillman, in the Western Regional Nursery, was 1040, 960, and 980 ml, respectively.

Breeder and foundation seed of Vandal will be maintained by the Idaho Agricultural Experiment Station. Seed may be obtained by writing C.T. Liu, IAES, University of Idaho, Moscow, ID 83843. Foundation and registered seed will be available from the Idaho Crop Improvement Association. The U.S. Department of Agriculture will have no seed for distribution. The proposed release date for publicity shall be on the date of final signature of the release notice.

Director
Idaho Agricultural Experiment Station
University of Idaho
Moscow, Idaho 83843

Date

Administrator
U.S Department of Agriculture
Agricultural Research Service
Washington, D.C.

Date

EXHIBIT A

ORIGIN AND BREEDING HISTORY OF VANDAL

Vandal is a pure-line selection from the 1978 cross A78540S of CM16716-M-3M-2Y-3M-0Y/A72483S-3-2. CM16716-M-3M-2Y-3M-0Y is a CIMMYT breeding line also designated as 'Cowbird Sib' and A72483S-3-2 is an Aberdeen, Idaho breeding line with the pedigree McCall/Baijo 66/4/TZPP/Sonora 64/3/Lee//No. 58/Thatcher. A78540S was advanced by the bulk breeding method in the F₂ and F₃ generations. In 1981 head selections were made from the F₃ bulk and grown as F₄ headrows in 1982. The head selection from which Vandal was derived was designated A78540S-20 and tested in Southeastern Idaho yield trials from 1983 to 1985. In 1986, A78540S-20 was entered into the Tri-State Spring Wheat Nursery as advanced breeding line IDO341. IDO341 was tested in the Western Regional Spring Wheat Nursery from 1987 to 1989. Vandal is a composite of approximately 250 head selections made from IDO341 in 1988 and selected in 1989 and 1990 for uniformity.

EXHIBIT B

NOVELTY STATEMENT FOR VANDAL HARD RED SPRING WHEAT

In irrigated trials at Aberdeen from 1983 to 1990, Vandal Borah, 'McKay', and 'Pondera' had average grain yields, respectively, of 6.6, 5.9, 6.2, and 6.3 Mg ha⁻¹. Test weight for the same cultivars in those trials were 760 (Vandal), 753 (Borah), 758 (McKay), and 784 kg m⁻³ (Pondera). In the Western Regional Nursery from 1987 to 1989 across all locations, Vandal had grain yield 125% of the long-term nursery check 'Federation'; McKay and 'Spillman' each yielded 135% of Federation. In trials at Aberdeen, Vandal had less lodging than Copper in 9 of the 11 yield trials grown from 1984 to 1990 and identical lodging scores to Westbred 926 in 6 of 6 trials grown from 1987 to 1990. Vandal has good baking quality with an average flour protein of 13.5% in Southeastern Idaho trials from 1986 to 1989. In the same trials Copper and Westbred 906R had flour protein of 12.9% and 12.7%, respectively. In bake tests conducted from 1986 to 1989 on Southeastern Idaho trials, dough mixing time and loaf volume were 2.9 minutes and 976 ml for Vandal, 2.5 minutes and 916 ml for Copper, and 2.7 minutes and 954 ml for Westbred 906R. In the Western Regional Nursery, 1987 to 1989, the average Farinograph stability for Vandal, McKay, and Spillman was 12.9, 11.4, and 5.9 minutes, respectively. Loaf volume for Vandal, McKay, and Spillman, in the Western Regional Nursery, was 1040, 960, and 980 ml, respectively.

EXHIBIT D

ADDITIONAL DESCRIPTION OF VANDAL

Vandal is similar in height and tillering response to 'Westbred 906R' and 'Westbred 926'. Vandal is a long season spring wheat, heading 4 and 6 days later than 'Copper' and Westbred 906R, respectively. Leaf color is intermediate green similar to 'Borah'; anthocyanin pigmentation is absent in Vandal from stems, leaf auricles, and anthers. The flag leaves are broad and semi-erect similar in size and carriage to Westbred 926. The inflorescence of Vandal is awned, mid-dense, with short, wide, glumes which are glabrous having oblique shoulders and acuminate beaks. Chaff color of Vandal is white to yellow-white at maturity. Vandal has hard red spring seed conformation; the shape is elliptical with angular cheeks and a short, un-collared brush. The seed crease is wide and shallow similar to 'Chris'. Vandal has adult plant resistance to stripe rust (Puccinia striiformis West.) races prevalent in the Pacific Northwest. Vandal has susceptibility to the Russian wheat aphid (Diuraphis noxia Mordv.) comparable to 'Yecora Rojo', 'Borah', and Westbred 906R.