Washington Agricultural Research Center
Washington State University
Pullman, Washington

and

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

Release of Wadual (PI506354) Soft White Spring Wheat

The Washington Agricultural Research Center, Washington State University and the Agricultural Research Service of the United States Department of Agriculture announce the release of Wadual spring wheat to certified seed growers. The purpose of the release is to provide growers with additional market channel options based on the unique dual (bread and pastry) processing quality characteristics of this new wheat.

Wadual was developed by the Washington Agricultural Research Center, Washington State University, Pullman, WA 99164, with the cooperation of the Western Wheat Quality Laboratory, Agicultural Research Service, United States Department of Agriculture.

Wadual, as selection No. K8005064, and later WA7187, is a reselected bulk increase of an F_5 single spike selection made in 1977 from an F_2 derived, F_2 selected bulk F_4 increase of the cross K74182/Potam70 made by C. F. Konzak at Pullman, Washington in 1974. K74182 was an F_1 plant of the cross K7105081/(N6600022, Koelz 7941/Onas52, Sel566-2). K7105081 = Norona 843/Marfed Mutant 1844.

The cross was made with the specific objective to combine bread and pastry-making properties in a soft white spring wheat. Wadual meets this objective, and is therefore unique among spring wheats in possessing its reproducible combination of processing quality traits. Unlike hard white wheats, the soft endosperm characteristic of Wadual allows its grain to be freely blendable with other soft white wheats in market channels without deteriorating the milling or processing properties of the soft wheats. Rather, the exceptional milling and pastry-processing qualities of Wadual are more likely to improve the properties of such blends. However, its combination of bread and pastry-making properties will favor its direction to specialty products, including whole wheat and family flours.

Because Wadual is a soft wheat, its milling properties and requirements are typical for a good milling soft wheat. Its flour absorption properties are on the high side for a typical soft white wheat, but on the low side for a typical hard wheat. Inducing greater starch damage would likely increase bake absorption. Its flour mixing properties are more typical of a hard than a soft wheat, but these properties do not affect its performance in pastry-making.

Wadual has a "tall" semidwarf plant height, being about 2-4 inches taller than Edwall. It carries one major (Rht_1 or Rht_2) semidwarfing gene. However, it is nearly as tolerant of lodging as Edwall when grown under high production conditions. Wadual has long, nearly parallel awned spikes with white chaff. The kernels are soft in texture, long ovate with rounded cheeks, a mid-depth crease and a medium brush.

Wadual carries moderate levels of resistance to locally prevalent forms of stripe and leaf rusts and is resistant to local forms of stem rust, but is susceptible to powdery mildew. It is susceptible to the hessian fly, and is expected to be susceptible to common bunt.

Wadual has been tested in Washington State performance trials since 1981 and in the Tri-State Spring Wheat Regional Nursery since 1983. Its yield performance is slightly below, but generally not statistically different from that of currently high performing soft white spring wheat cultivars Waverly, Edwall and Penawawa. Its performance may rank between that of Waverly and Edwall which can differ by 10%. However, its 1987 yields at Lind, Pullman and Royal Slope (irrigated) stations were: 1.749, 6.861, 8.005 T/ha (26, 102 and 119 bu/a) vs. 1.816, 6.861, 7.467 T/ha (27, 102 and 111 bu/a) for Edwall and 1.883, 7.130, 8.072 T/ha (28, 106 and 120 bu/a) for Waverly. Its grain protein content is generally in the range of that for other soft white spring wheats grown under similar conditions. Its grain test weight has averaged 1.3, 2.6 and 3.9 kg/hl higher (1, 2, 3 lbs/bu) respectively, than Penawawa, Waverly and Edwall.

Seed classes of Wadual will be breeder, foundation, registered and certified. Breeder seed will be produced by the Washington State Crop Improvement Association, N. 513 Front St., Yakima, WA 98501. Test quantities of seed may be obtained from the Washington State Crop Improvement Association, Agronomy Seed House, Pullman, WA 99164.

The release date will be February 1, 1988.

J Fuches /RO — 7-12-88

Director
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Date

M. E. Carter — JUN 21 1988

Acting Administrator
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U.S.D.A.
Washington, D. C.

Date