

AGRICULTURAL RESEARCH CENTER

WASHINGTON STATE UNIVERSITY

PULLMAN, WASHINGTON

AND

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

WASHINGTON, D.C.

RELEASE OF 'ANDREWS' (PI512282), A HARD RED WINTER
WHEAT FOR PRODUCTION IN THE SNOWMOLD AREAS OF WASHINGTON

Andrews was selected by William Bruehl from the cross PI167822/CI13438//CI9342/Itana3/CI17171/Sturdy. Andrews is a high tillering semidwarf with medium spikes, awns, and white glumes. Winter hardiness is about equal to 'Hatton' and 'Weston'. Straw strength is somewhat weak. Maturity is early to mid season with heading about 3 days earlier than Hatton. Andrews has semidwarf emergence and a relatively short coleoptile equal to 'Sprague' or 'Lewjain'.

Andrews is moderately resistant to the races of dwarf bunt occurring in the snowmold areas of Washington and resistant to common bunt, containing genes 4, 8, and some unidentified factors for resistance. It has shown moderate resistance to the local races of stripe rust and moderate susceptibility to leaf rust. It is moderately resistant to flag smut and susceptible to straw breaker foot rot. Snowmold tolerance is slightly less than that of Sprague, but better than other hard red wheat varieties available to producers.

The yield performance of Andrews has been consistently better than Weston, Hatton, or 'Manning' in the Waterville nurseries whether snowmold was a problem or not. Inconsistent comparative yields have been obtained in all other locations in Washington. Test weight is two pounds per bushel less than Hatton and comparable to 'Neeley' and Manning.

The USDA-ARS Western Wheat Quality Laboratory at Pullman, Washington has shown that the milling and bread baking performance of Andrews is satisfactory. The protein content of the whole grain and flour are equal to that of Hatton and Neeley.

Breeder and Foundation seed of Andrews will be maintained by the Washington State Crop Improvement Association, Yakima, Washington under the supervision of the Agronomy and Soils Department, College of Agriculture Research Center, Washington State University, Pullman, Washington, 99164.

M. E. Carter

For Administrator
Agricultural Research Service
U.S. Department of Agriculture

JUN 20 1989

Date

J. Zuehlke/00

Director
College of Agricultural Research Center
Washington State University
Pullman, Washington

7-17-89

Date

REGISTRATION OF 'ANDREWS' WHEAT

'ANDREWS', a hard red winter wheat (*Triticum aestivum* L.) (Reg. no. CV-765, PI 512282) was developed by the College of Agriculture and Home Economics of Washington State University in cooperation with the USDA-ARS. It was jointly released to growers by the Washington Agricultural Research Center and USDA-ARS in 1987 for culture in the snowmold (caused by *Typhula* spp.) region of north central Washington. Andrews was selected from a snowmold trial in Douglas county in 1977 as a plant row derived from a single F₃ plant from the cross PI167822/CI13438//CI9342/'Itana'/3/CI17271/'Sturdy' made in 1973.

Andrews has winter habit, early to midseason maturity, and semidwarf stature. It has a midstrong white stem with an awned, oblong to fusiform, middense to lax inclined spike. Its glumes are glabrous, white, and midlong. The awns are white, 2 to 7 cm long. The kernels of Andrews are red, midlong, hard, ovate to elliptical in shape, with a small germ and a midlong, midsize brush. The crease is midwide and middeep. The cheeks are rounded.

Andrews was tested as WA006820 in Washington trials during the crop years 1980 to 1986 and in the Western Regional Hard Red Winter Wheat nursery during the crop years 1982 to 1986. The yield performance of Andrews has been consistently better than 'Weston', 'Hatton', or 'Manning' in Douglas county where snowmold is a serious problem. Inconsistent comparative yields have been obtained at other locations in Washington. Test weight is comparable to that of 'Neeley' and Manning, but ≈ 20 g L⁻¹ lighter than that of Hatton.

Winterhardness of Andrews is less than that of Hatton or Weston. Andrews has typically poor semidwarf emergence characteristics and a midlength coleoptile similar to 'Sprague' and 'Lewjain'. Andrews has better tolerance to snowmold than Weston or Manning, but somewhat less than Sprague. Andrews is moderately resistant (mature plant type) to local races of stripe rust caused by *Puccinia striiformis* Westend. and good resistance to common bunt caused by

Tilletia caries (DC.) Tul. & C. Tul., possessing genes *Bt4*, *Bt8*, and additional unknown factors. It is only moderately resistant to dwarf bunt caused by *Tilletia controversa* Kühn in Rabenh. Andrews is susceptible to leaf rust caused by *Puccinia recondita* Roberge ex Desmaz., stem rust caused by *Puccinia graminis* Pers.:Pers., strawbreaker foot rot caused by *Pseudocercospora herpotrichoides* (Fron) Deighton, and dryland foot caused by *Fusarium culmorum* (Wm. G. Sm.) Sacc.

The USDA-ARS Western Wheat Quality Laboratory at Pullman, WA, has shown that, after milling, the flour yield and loaf volume for Andrews are slightly lower than those of Hatton or Wanser, with the flour protein and optimal bread mix time equal to those of Hatton or Wanser.

Breeder and foundation seed of Andrews will be maintained by the Washington State Crop Improvement Association under the supervision of the Agronomy and Soils Department, Washington State University, Pullman, Washington, 99164-6420.

Five white seeds per pound are allowed in foundation, registered, and certified classes of seed.

EDWIN DONALDSON,* G. W. BRUEHL,
AND G. L. RUBENTHALER (1)

References and Notes

1. E. Donaldson, Agronomy and Soils Dep., Dry Land Research Unit, Washington State Univ., Lind, WA 99341; G.W. Bruehl (retired), Plant Pathology Dep., Washington State Univ., Pullman, WA; and G.L. Rubenthaler (retired), USDA-ARS Western Wheat Quality Laboratory, Pullman, WA. Scientific paper no. 9102-02. Project no. 1667. College of Agric. Res. Ctr., Washington State Univ., Pullman, WA 99164. Registration by CSSA. Accepted 31 Mar. 1991. *Corresponding author.