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UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WASHINGTON, D.C. 20250

RELEASE OF 'WINSOME' HARD WHITE SPRING WHEAT SELECTION OR4870453

The Oregon Agricultural Experiment Station, in cooperation with the Agricultural Research Stations of Washington and Idaho and the Agricultural Research Service, United States Department of Agriculture, announce the release of the new hard white spring wheat (Triticum aestivum L.) cultivar 'Winsome'. Winsome was developed by the International Center for Wheat and Maize Improvement (CIMMYT) and selected by Oregon State University Agricultural Experiment Station (OSU-AES). Winsome was released for its adaptation to high yielding environments in the Pacific Northwest and end-use qualities suitable for Asian noodle applications. Winsome is the first hard white spring wheat cultivar released by Oregon State University. Winsome has shown superior leaf rust and lodging resistance and superior milling characteristics as compared with the hard white spring cultivar 'ID377S'.

Winsome is an F_6 derived line from the cross 'Hork' sib/'Yamhill'// 'Kalyansona'/'Bluebird'. It was entered in the 18th IBWSN (International Bread Wheat Screening Nursery) in 1985 as experimental line CM38212-I-7Y-2M-1Y-3M-2Y-0M. It was selected for further testing based on promising agronomic performance under Oregon production conditions. Winsome was tested from 1987 to 1999 under the experimental designation OR4870453.

Winsome is a medium-late-maturing semidwarf spring wheat cultivar with good lodging resistance. In three years of Oregon variety trials, Winsome averaged one day later in heading date compared with the hard white spring wheat variety ID377S and three days later than the soft white cultivar 'Penawawa'. In Southern Idaho variety trials, Winsome averaged five days later in heading date than ID377S. Winsome has demonstrated superior lodging resistance as compared

with ID377S in both Oregon and Idaho trials. Plant height of Winsome averaged approximately 1 inch less than ID377S and 2.5 inches more than Penawawa.

Winsome is moderately resistant to prevalent races of stripe rust *(Puccinia striiformis)* and leaf rust (*P. recondita Roberge ex Desmaz.*). Compared with ID377S, it has shown superior leaf rust resistance. Its stripe rust resistance has been superior to Penawawa and 'Alpowa'.

Winsome was evaluated in breeding trials at Pendleton and Corvallis since 1987. In the last five years of testing, Winsome averaged 2.2 bu/a higher grain yield than ID377S and 8.0 bu/a higher grain yield than 'Klasic'. Winsome was evaluated in the USDA-ARS Western Regional Hard Spring Wheat Nursery from 1990-1992, during which its grain yields were slightly lower than ID377S, but significantly higher than Klasic.

Winsome was tested in the Oregon State Variety Trials from 1997 to 1999. Winsome averaged 66.0 bu/a grain yield over 30 trials, 1.5 bu/a lower than ID377S and 2.9 bu/a less than Penawawa. In three years of Washington State Variety trials, Winsome averaged 1.2 bu/a less grain yield than ID377S and 0.8 bu/a higher yield than Penawawa. ID377S has shown a greater yield advantage over Winsome in Southern Idaho variety trials, averaging 91.3 bu/a over three years compared with 82.9 bu/a for Winsome. Compared with the hard red spring cultivars 'Scarlet', 'WPB 926' and 'WPB 936', Winsome has shown higher grain yield potential in Oregon and Washington trials.

Winsome has averaged 0.7 to 0.9 lb/bu lower in test weight than ID377S in both the Oregon and Washington state variety trials. Grain protein concentrations of Winsome averaged 11.6% in Oregon variety trials, 0.6% lower in protein content than ID377S and 0.7% higher than Penawawa. Similar differences in grain protein levels were observed in the 1999 Washington variety trials.

End-use quality attributes of Winsome were evaluated at the USDA-ARS Western Wheat Quality Laboratory (USDA-WWQL) from 1990 to 1998. Winsome is considered as having commercially acceptable end-use properties for the hard white wheat market class. Winsome has exhibited slightly lower test weight and kernel weight as compared to ID377S and Klasic, but it has harder grain and superior milling quality compared to ID377S. Milling quality of Winsome is similar to Klasic, which is considered to have superior hard wheat milling properties. Winsome has slightly improved bread baking properties as compared with ID377S, as indicated by higher loaf volume potential. Winsome has similar dough mixing properties to ID377S, but requires less mixing time than Klasic. Winsome has a lower grain protein content than Klasic, with correspondingly lower loaf volume, but has shown superior crumb grain scores. Starch quality of Winsome is typical of normal amylose wheats. Winsome has acceptable noodle color properties, similar to ID377S and superior to that of

Klasic. Klasic possesses color properties unacceptable for Asian noodle products.

Hokkien and Taiwanese raw noodle processing qualities of Winsome were evaluated by the Wheat Marketing Center. Hokkien noodle color and textural properties of Winsome were rated as similar or better than the commercial noodle flours used as controls. Winsome was rated similar to ID377S for machining and textural properties, but it exhibited slightly darker noodle color. In Taiwanese raw noodle evaluations, Winsome was rated as having qualities similar to commercial flours for noodle color and texture. Winsome was superior to ID377S for noodle color and texture in the 1995 crop year, but the varieties were rated as similar in the 1998 tests. Based on the WWQL and WMC evaluations, Winsome appears to have end-use qualities that are acceptable for most Asian noodle applications.

The Breeder seed class of Winsome will be maintained by the Foundation Seed Program, University of Idaho, Kimberly, ID. Other recognized seed classes are Foundation, Registered, and Certified per AOSCA standards. Winsome will be submitted for U.S. Plant Variety Protection with the certification (Title V) option. Seed of Winsome has been deposited in the USDA National Small Grains Collection, Aberdeen, Idaho. It is requested that the source of this material be acknowledged in future usage by wheat breeding and genetics programs.

R. E. Kottkamp — 7/6/00

for Dean, College of Agricultural Sciences — Date
Oregon State University

Ralph P. Cavalieri — 7/14/00

Director, Agricultural Research Center — Date
Washington State University

Richard C. Heinrichs — 10/10/2000

Director, Agricultural Experiment Station — Date
University of Idaho

Edward B. Knipling — 1/17/2001

Administrator, Agricultural Research Service — Date
U.S. Department of Agriculture

Department of
Crop and Soil Science

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ANSWERED AUG 0 1 2001

July 30, 2001

TO: PNW Foundation Seed and Seed Certifying Agencies

FROM: Russ Karow, Interim Head
Crop and Soil Science

SUBJECT: Variants in Winsome

Barry Schrumpf recently sent out the current version of the seed variant list maintained by Washington Crop Improvement. This reminded me that I had not yet sent out this statement prepared by Dr. Jim Peterson, OSU Wheat Breeder, regarding variants in Winsome hard white spring. Please add this memo to your documentation for this variety. Please contact me if you need additional information or clarification.

Variants in Winsome

Winsome may contain up to 5 red kernels per one pound of seed in Breeder, Foundation, Registered, or Certified seed classes. Winsome also may up to a total of 1 in 40,000 combined of the following naturally occurring variants: plants that are 8 to 15 cm taller; plants which are 5 to 8 days later in maturity; plants with non-clavate head architecture. The variants described are distinct within the variety and are stable and predictable, with a degree of reliability comparable to other varieties of the same kind. Variants are within recognized tolerances and were originally a part of the variety when released.

XC: Jim Peterson, Bob Witters, Lee Schweitzer, Barry Schrumpf

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