

OREGON AGRICULTURAL EXPERIMENT STATION
OREGON STATE UNIVERSITY
CORVALLIS, OREGON
and
IDAHO AGRICULTURAL EXPERIMENT STATION
UNIVERSITY OF IDAHO
MOSCOW, IDAHO
and
WASHINGTON AGRICULTURAL EXPERIMENT STATION
WASHINGTON STATE UNIVERSITY
PULLMAN, WASHINGTON
and
UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WASHINGTON, D.C.

NOTICE OF NAMING AND RELEASE OF THE WHITE WINTER WHEAT VARIETY
IVORY
OR850513

The Oregon, Idaho, and Washington Agricultural Experiment Stations and the United States Department of Agriculture announce the release of the white winter wheat variety, **IVORY**.

Description

OR850513 is a hard white winter wheat. It is semi-dwarf with white, moderately stiff straw. The spike is awned, fusiform, mid-dense and nodding. Glumes are glabrous, white, mid-long; shoulders mid-wide, oblique; beaks narrow, acuminate, 2 to 3 mm. Awns are 3 to 7 cms long. The kernels are white, mid-long, hard, elliptical with a mid-size germ and a mid-wide, mid-deep crease. The brush is small.

Pedigree and History

OR850513 is derived from the single cross Riebesel/Anza/3/Kavkaz/Hyslop//Yamhill/Tobari /4/Bobwhite sib. Riebesel/Anza/3/ Kavkaz/Hyslop//Yamhill/ Tobari was a fixed line, (winter type) when it was crossed to Bobwhite sib (spring type). The winter wheats in the pedigree are Riebesel from Germany, Kavkaz from the former Soviet Union, Hyslop and Yamhill from the Oregon program. Anza is a spring cultivar from California and both Tobari and Bobwhite are spring lines from CIMMYT in Mexico. The Cross was made in Toluca, Mexico and F₁ seed was sent to Oregon. F₂ plants were selected in Corvallis. The F₃ plant rows were grown in Pendleton with the selected F₄ plant rows returning to Corvallis. Seed from the F₅ plant was split and grown in Corvallis, Moro and Pendleton. The line was bulked from the Corvallis location and yield tested in the 1986 hard white preliminary yield trial. It was tested in the Tri-state Hard Red Nursery system as at that time there was no market interest in hard white wheat.

Yield and Agronomic Traits

OR850513 in seven years of yield testing at Corvallis outperformed Stephens by 19 bushels per acre on the average (Table 2). In five years of testing at Corvallis it averaged two bushels more per acre than Madsen. In Pendleton its yield average was equivalent to Stephens, but fourteen bushels lower on the average than Madsen (Table 3). It is seven days earlier in heading than Stephens and slightly taller. Winterhardness could be a drawback; it averages a three while Stephens and Madsen are scored as twos (one is excellent, five is dead). Lodging was a problem in this cultivar in 1995, both at Corvallis and Pendleton (Table 4). OR850513 was in the WRHRN (Western Regional Hard Red Nursery) from 1992 to 1994. In its first year of testing, out of the five hard white lines, it ranked first or second in yield in eight of the twelve locations. In its second year of testing, of the six hard whites, it ranked first or second five out of eleven times. In 1994 there were eleven hard white winters tested. OR850513 ranked in the top five at five of the eleven locations.

Quality Data

OR850513 has been evaluated for quality starting in 1990. Over these seven years compared to Wanser, a hard red winter wheat (HRW), it has had a better test weight, equivalent flour yield, slightly better milling score, lower protein and consequently lower loaf volume. There are only two years of data comparisons with Arlin (HRW). Good bread baking is not essential in a noodle wheat, but it would provide an ingress into the domestic market for the wheat. It appears that OR850513, even at an acceptable protein level, would be a mediocre bread wheat (Table 5).

To fit into the noodle market a line should have intermediate protein levels (10-12.5% in the flour), good starch pasting viscosity (greater than 180 on the RVA) and noodle color stability. In five of the eight RVA tests the score has been acceptable – 179 to 203. In regional testing it has always had the highest RVA in the nursery (Table 6). Seed from the 1995 crop of OR850513 was entered in the Collaborative Testing Program at the Wheat Marketing Center (WMC). Four different types of Asian noodles were made from the flour by four different Asian teams. Color was extremely important in three of these noodle types: Hokkien, Bamee and Raw. OR850513 had acceptable color for all three types. Table 7 shows the brightness score from the minolta chroma meter, the change in brightness after 24 hours and the sensory evaluation scores of the Asian teams. This data is reported for OR850513 and two other winter varieties with good color characteristics (Table 7). The noodle laboratory at the Portland Marketing Center has observed that the selection makes satisfactory noodles regardless of the protein level.

Collaborative test results indicate that for two of the noodle types OR850513 is acceptable alone; for one of the types, it is acceptable in a blend; and because of low protein it was unacceptable for instant fried noodles (Table 8).

Area of Adaptation

OR850513 has been tested primarily under non-irrigated conditions and is adapted to conditions ranging from the drylands of Sherman County to the higher rainfall situations of the Willamette Valley and the Pendleton area.

Disease Resistance

OR850513 is more tolerant to Leaf Blotch (Septoria tritici) than Stephens, and similar in response to Madsen. It is more tolerant than either Madsen or Stephens to Powdery Mildew. Its reaction to Stripe Rust (Puccinia striiformis) as an adult plant is an intermediate type (MR/MŠ) reaction. It is resistant to Leaf Rust (P. recondita f. sp. tritici)

for
R.E. Witter 8/22/00
Director, Oregon Agricultural Experiment Station Date

Richard C. Henrich 10/10/2000
Director, Idaho Agricultural Experiment Station Date

Director, Washington Agricultural Experiment Station Date

Edward B. Kuyling 1/17/2001
Administrator, USDA/Agricultural Research Service Date