

WASHINGTON AGRICULTURAL RESEARCH CENTER
WASHINGTON STATE UNIVERSITY
PULLMAN, WA 99164

AND

IDAHO AGRICULTURAL EXPERIMENT STATION
UNIVERSITY OF IDAHO
MOSCOW, ID 83844

AND

OREGON AGRICULTURAL EXPERIMENT STATION
OREGON STATE UNIVERSITY
CORVALLIS, OR 97331

AND

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
WASHINGTON, DC 20250

**RELEASE OF 'RADIANT' (PI)
A NEW TWO-ROW SPRING BARLEY CULTIVAR**

The Washington Agricultural Research Center, the Idaho Agricultural Experiment Station, the Oregon Agricultural Experiment Station and the United States Department of Agriculture - Agricultural Research Service jointly announce the release of 'Radiant' spring barley to farmers and seedsmen for commercial production. Radiant was developed by the Washington Agricultural Research Center and is unique because it is the first proanthocyanidin-free barley released at Washington State University and in the United States of America.

Radiant was bred by single seed descent technology from a cross of mutant *pant29-667* (Harrington) x 'Baronesse'. The mutant was selected after sodium azide mutagenesis in the cultivar 'Harrington' in 1995. 'Harrington' is the leading 2-row malting barley in the USA that was released in Canada in 1981. 'Baronesse' is a European two-row spring feed type developed by Nordsaat in Germany and released in the USA in 1992. 'Radiant' was tested under the line designation WA98NZ223. The F1, F2 and F3 generations were grown in the greenhouse at WSU from September 1996 to August 1997. 709 plants homozygous for the *pant29-667* gene were selected with the vanillin test and sent to Southern Seed Technology, Leeston, New Zealand in September 1997 for propagation as single rows. Upon return of the harvest from New Zealand in February 1998 the progenies were planted in two singly replicated nurseries at Pullman, WA (non-irrigated) and Royal Slope (irrigated) and the 28 highest yielding lines at the two stations

were selected for further testing in replicated nurseries in Pullman and Royal Slope in 1999. 'Radiant' was selected from the 14 highest yield lines at both stations in 1999.

Radiant is similar to Baronesse in morphology, plant height, maturity and diseases resistance but distinct from Harrington and Baronesse by the absence of proanthocyanidin (condensed tannins) in the testa (seed coat). Proanthocyanidin-free barley is unique because it makes the technical processes for stabilization of beer against permanent and chill haze superfluous and thus assures good shelf-life of the beverage. Removal of proanthocyanidins from grain also prevents the formation of the gray color that makes barley porridge unattractive as baby food and in the use of barley as breakfast cereals. This novel trait has been achieved in Radiant by exploiting a gene mutant that blocks the last steps in the biosynthesis of proanthocyanidin in the seed coat without depressing grain yield. Radiant is widely adapted across eastern Washington and in general across Idaho and Oregon.

Average yield of Radiant in Washington State Uniform Spring Barley Nursery across 41 sites at 15 locations in the three years of 2000, 2001 and 2002 were 99% of Baronesse. Steptoe, Harrington and Morex yielded 93%, 92% and 70% of Baronesse in the same trials, respectively. In the 2002 Western Regional Spring Barley Nursery, Radiant ranked third overall among 37 tested cultivars at 14 testing locations with an average grain yield of 4816 pounds per acre. Radiant tends to head 2 to 5 days later than Baronesse. Lodging under furrow irrigation systems has been minimal. From research trials Radiant is the first proanthocyanidin-free cultivar with yield levels that can compete with leading malt and feed spring barley cultivars.

Breeder seed of Radiant was produced in 2002 and Foundation seed will be produced in 2003. Requests for seed can be made to the WSCIA Foundation Seed Service, Washington State University, Pullman, WA 99164-6420 (509-335-4365). Application for Plant Variety Protection will be made.

Director, Washington Agricultural Research Center
Washington State University

Date