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UNIVERSITY OF IDAHO
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and

OREGON AGRICULTURAL EXPERIMENT STATION
OREGON STATE UNIVERSITY
Corvallis, Oregon

RELEASE OF 'CRYSTAL' (P.I. 531249)
A NEW TWO-ROWED SPRING MALTING BARLEY VARIETY

The Agricultural Research Service, U.S. Department of Agriculture and the Idaho and Oregon Agricultural Experiment Stations announce the joint release of 'Crystal' (P.I. 531249), a two-rowed spring malting barley variety, to farmers and seedsmen for commercial production. Crystal was developed cooperatively by Agricultural Research Service, U.S. Department of Agriculture and the Idaho Agricultural Experiment Station. Crystal is currently being evaluated for agronomic performance and malting and brewing quality in a variety of industry tests. It was recently recommended by the American Malting Barley Association (AMBA) for malting and brewing.

Crystal is from a cross of 'Columba'/'Klages'. It originated at Aberdeen, Idaho in 1978 as an F5 selection designated 78Ab6871. Crystal is a midseason, white-aleurone, two-rowed spring barley with lax mid-long to long spikes, rough awns, and long rachilla hairs.

Crystal was first entered in replicated yield trials at Aberdeen in 1979. It has been widely tested in both irrigated and dryland trials in Idaho since that time. It was grown in the preliminary Western Spring Barley Nursery in 1981 and in the regional Western Spring Barley Nursery during 1982-84. It was first submitted for American Malting Barley Association (AMBA) pilot-scale evaluations of malting and brewing quality in 1982. Industry plant-scale evaluations of malting and brewing quality under the auspices of the AMBA were initiated in 1985. The USDA Barley and Malt Laboratory, Madison, Wisconsin; Great Western Malting Company, Vancouver, Washington; Anheuser-Busch Companies, St. Louis, Missouri; and Adolph Coors Company, Golden, Colorado, cooperated in the early testing of malting and brewing quality. Great Western Malting Company generously assisted with the field-scale increases for industry plant-scale tests of malting and brewing quality in cooperation with the AMBA.

In 30 station-years of testing in irrigated trials at five Idaho locations in 1981-87, Crystal averaged 98.3 bu/A, or 105% of Klages. In these Idaho trials, Crystal and Klages were similar in height and heading date, but Crystal was superior to Klages in test weight, kernel plumpness, and lodging resistance. Crystal averaged six percentage points higher than Klages in kernel plumpness in these Idaho irrigated trials. In Idaho dryland trials conducted at the Tetonia Research and Extension Center from 1982 to 1988, Crystal averaged 102% of Pirolina, 98% of Clark, and 94% of Hector in yield.

In three years of testing in the regional Western Spring Barley Nursery in 1982-84, involving 57 station-years, Crystal averaged 84.2 bu/A, or 106% of Klages. As in the Idaho trials, Crystal and Klages were similar in height and heading date in the regional trials, but Crystal again exhibited superiority to Klages in test weight, kernel plumpness, and lodging resistance.

In malting quality comparisons involving 33 Idaho trials grown from 1979-87, Crystal and Klages were very similar. In these comparisons, the two varieties were essentially identical with respect to barley protein %, malt extract, and alpha amylase activity. Crystal averaged slightly higher than Klages in diastatic power and slightly lower than Klages in malt fine-coarse difference and ratio of wort N/malt N. Crystal averaged seven percentage points higher than Klages in kernel plumpness in these trials. The 1982-84 Western Spring Barley Nursery produced very similar overall results in 20 station-years of testing of malting quality characteristics.

Crystal maintains good kernel color or brightness as evidenced by relatively high Agtron reflectance readings vs other barley varieties, averaging 4 to 6 points higher than Klages on a 0-100 scale in Idaho and regional trials. Crystal also has a record of good field tolerance to Pseudomonas kernel blight in trials conducted in the Idaho Falls, Idaho area, providing another significant advantage over Klages.

Breeder and foundation seed of Crystal will be maintained by the University of Idaho Tetonia Research and Extension Center, Tetonia, Idaho. Requests for seed should be directed to James C. Whitmore, Superintendent, Research and Extension Center, HC 60, Box 1231, Newdale, Idaho 83640. The U.S. Department of Agriculture has no seed for distribution.