

# REGISTRATION OF CULTIVARS

## Registration of 'Colter' Barley

'COLTER' SPRING BARLEY (*Hordeum vulgare* L.) (Reg. no. CV-235, PI537967) was developed cooperatively by the USDA-ARS and the Idaho, Oregon, and Washington Agricultural Experiment Stations. It was released by these agencies in 1991.

Colter was selected from the cross 73Ab2199/'Karla' made in 1976. The parent 73Ab2199 is a six-rowed spring selection developed by the ARS at Aberdeen, ID, from the cross 'Steptoe'/'Larker'. Karla was developed also by the ARS at Aberdeen and is from the cross 63Ab2987-9/2\*'Conquest'. Line 63Ab2987-9 is a sib selection to 'Karl'. Colter originated at Aberdeen as an  $F_4$  spike selection, subsequently harvested as an  $F_5$  row in 1979, and initially identified as 79Ab10719. One hundred and eight lines or reselections of 79Ab10719 were grown in nonreplicated lots under irrigation at Aberdeen in 1984. Seventy of these 108 lines were grown in replicated trials at Aberdeen in 1985 and 66 lines were selected and composed as 79Ab10719-66LC in 1986 based on yield, test weight, kernel plumpness, heading date, height, incidence of alternaria kernel blight, and general agronomic appearance. Colter was identified as 79Ab10719-66LC from 1986 until release. Colter is a six-rowed spring barley that is midseason in maturity with moderately lax spikes, smooth awns, and kernels with white aleurone. Lemma barbs are few to none and the rachilla hairs are long.

Selection 79Ab10719 was first tested in replicated trials in Idaho in 1980. Following reselection and bulking, Colter was entered in the regional Western Spring Barley Nursery and Western Dryland Spring Barley Nursery in 1988. It has been widely tested in both irrigated and dryland trials in Idaho and other western states since regional testing was initiated. In six station-years of testing in irrigated trials at Aberdeen from 1986 to 1991, Colter averaged 8476 kg ha<sup>-1</sup> or 107% of Steptoe, 115% of 'Gus', 138% of 'Morex', and 119% of 'Russell'. In these same trials, Colter equaled or exceeded all these cultivars in test weight. However, Colter was inferior to these cultivars in kernel plumpness. Colter averaged 80% plump barley (over a 2.4- by 19.1-mm screen) versus 92% for Steptoe. Colter was similar to Steptoe and Russell in height and taller than Gus, but shorter than Karla and Morex. Colter, Steptoe, and Morex were similar in heading date at Aberdeen. Colter was superior to Steptoe and Morex in lodging resistance, but inferior to Karla, Russell, and Gus.

In six station-years of testing in dryland trials at Tetonia, ID in 1986 to 1991, Colter averaged 2892 kg ha<sup>-1</sup> or 96% of Steptoe and 109% of Russell. In these trials Colter averaged 658 kg m<sup>-3</sup> (51.1 lb/bu) in test weight compared to 640 kg m<sup>-3</sup> for Steptoe and 674 kg m<sup>-3</sup> for Russell. Colter was inferior to Steptoe in kernel plumpness at Tetonia, averaging 77% plump barley versus 93% for Steptoe.

In 55 station-years of testing from 1988 to 1990 in the Western Spring Barley Nursery, Colter's yield averaged

102% of Steptoe. Colter and Steptoe averaged about the same in height and heading date, but Colter exhibited better resistance to lodging than Steptoe. Colter was slightly higher than Steptoe in test weight, but lower than Morex. Colter averaged 75% plump barley, Steptoe 84%, and Morex 79% in these regional trials over the 3-yr period. In 31 station-years of testing in 1988 to 1990 in the Western Dryland Barley Nursery, Colter's yield averaged 101% of Steptoe and 99% of 'Hector'.

Colter had high malt extract, averaging 80.5% in nine Idaho trials from 1986 to 1990 versus 79.5% for Morex and 80.2% for Russell. In these comparisons, Colter averaged 10.2% protein while Morex averaged 12.9% and Russell averaged 11.4%. Colter is inferior to both Morex and Russell in diastatic power and alpha amylase levels. A similar pattern of high malt extract together with low grain protein and enzymatic activity was observed in Karla and first studied extensively in Karl [Wesenberg et al., 1976 (1); Burger et al., 1979 (2)]. Colter is not recommended for malting and brewing by the American Malting Barley Association.

Colter is expected to compete favorably with existing six-rowed spring barley cultivars in irrigated and dryland environments in Idaho and other western states. Colter is named after John Colter (1770?-1813), an early Rocky Mountain fur trapper, explorer, and mountain man who served as a member of the Lewis and Clark expedition. He is especially remembered for his exploration of the region that now includes Yellowstone National Park. Breeder and foundation seed of Colter will be maintained by the Idaho Agricultural Experiment Station, Foundation Seed Program. Requests for breeder and foundation seed should be directed to the Coordinator, University of Idaho, Foundation Seed Program, Idaho Agricultural Experiment Station, College of Agriculture, Snake River Conservation Center, 3793 North 3600 East, Kimberly, ID 83341. Seed is available in small quantities for research purposes from the USDA-ARS National Small Grains Germplasm Research Facility, P.O. Box 307, Aberdeen, ID 83210.

D.M. WESENBERG,\* D.E. BURRUP, J.C. WHITMORE,  
AND B.L. JONES (3)

### References and Notes

1. Wesenberg, D.M., R.M. Hayes, N.N. Standridge, W.C. Burger, E.D. Goplin, and F.C. Petr. 1976. Registration of Karl barley. *Crop Sci.* 16:737.
2. Burger, W.C., D.M. Wesenberg, J.E. Carden III, and P.E. Pawlisch. 1979. Protein content and composition of Karl and related barleys. *Crop Sci.* 19:235-238.
3. D.M. Wesenberg and D.E. Burrup, USDA-ARS, Univ. of Idaho Aberdeen Res. & Ext. Ctr., USDA-ARS Natl. Small Grains Germplasm Res. Facility, P.O. Box 307, Aberdeen, ID 83210; J.C. Whitmore, Univ. of Idaho Tetonia Res. & Ext. Ctr., 888 West Highway 33, Newdale, ID 83436; and B.L. Jones, USDA-ARS Cereal Crops Res. Unit, 501 N. Walnut St., Madison, WI 53705. Cooperative investigations of the USDA-ARS and the Idaho, Oregon, and Washington Agric. Exp. Stn. Idaho Agric. Exp. Stn. Res. Paper no. 92755. Registration by CSSA. Accepted 28 Feb. 1993. \*Corresponding author.

Published in *Crop Sci.* 33:1401 (1993).