REGISTRATION OF KARLA BARLEY

'Karla' barley (Hordeum vulgare L.) (Reg. no. 194, CI 15860) was developed cooperatively by USDA-ARS and the Idaho Agric. Exp. Stn. It was released in 1981 by these agencies and by the Oregon and Utah Agric. Exp. Stns. The USDA Barley and Malt Laboratory, Madison, WI, and the Malting Barley Improvement Association (MBIA) (now the American Malting Barley Association), Milwaukee, WI, cooperated in testing its malting and brewing quality. Plant-scale evaluations of malting and brewing quality were initiated in 1980 in cooperation with the MBIA. Great Western Malting Co., Vancouver, WA, assisted with the field-scale seed increases needed for plant-scale evaluations. Karla was recommended as acceptable for malting and breeding by the MBIA in November 1982.

Karla originated as a B_{1}F_{3} selection from a cross of 63Ab2987-9/2* 'Conquest' made at Aberdeen, Idaho in 1972. The parent 63Ab2987-9 is a sister selection to 'Karl'. Conquest was developed at Brandon, Manitoba by the Canada Department of Agriculture. Karla was tested as 74Ab4502. It was first entered in replicated trials at Aberdeen in 1976 and was tested in the regional Western Spring Barley Nursery and the Western Dryland Barley Nursery in 1979 and 1980.

Karla is a six-rowed, midseason, spring malting barley. The semierect spikes are lax and mid-long to long with smooth awns and smooth rachis edges. Kerneis have a white aleurone and long hairs on the rachilla. The lemma or hull is adhering and wrinkled, with moderately prominent lateral veins which have few barbs. The glume has relatively short hairs confined to the midline of the glume. The crease is relatively narrow, closed at the base, and flaring toward the awn end. The point of attachment is a depression tending to be a transverse crease. Lateral kernels are moderately twisted.

Karla heads 8 days later than 'Steptoe' in southern Idaho. It is similar to Steptoe in test weight, but lower than Steptoe in plump kernel percent. Karla averaged 97 cm in height vs 91 cm for Steptoe in irrigated trials at Aberdeen in 1978-1982, but is superior to Steptoe in resistance to lodging.

Karla is less susceptible than Karl to skinning, i.e., mechanical damage to the lemma in harvesting and handling, and it is superior in resistance to both shattering and lodging to Karl and most six-rowed malting barley cultivars with which it has been compared. Karl is susceptible to powdery mildew (caused by Erysiphe graminis DC. ex Mérat f. sp. hordei Em. Marchal) and bacterial leaf streak (caused by Xanthomonas campestris pv. translucens [Jones et al.] Dye). It has greater resistance to discoloration from weathering than Karl, but is more susceptible than Karl to black point (caused by Alternaria species).

Karla averaged 95% of Steptoe, 121% of 'Larker', and 115% of 'Morex' in yield in 50 station-years of testing in the Western Spring Barley Nursery grown in 11 states and Alberta in 1979-1980. It averaged 99% of Steptoe in yield in 31 station-years of testing in the Western Dryland Barley Nursery grown in seven states and two Canadian provinces in 1979-1980. It averaged 113% of Karl in yield in irrigated trials at Aberdeen and Twin Falls, ID during 1976-1980. Karla averaged 97% of Steptoe in yield in irrigated trials at Aberdeen in 1978-1982.

Karla is similar to Karl in malting quality characteristics. In 14 comparisons from 1976-1979, the two cultivars were similar in barley protein percent (about 11.0%), diastatic power, malt extract, fine-coarse difference, and kernel weight. In these trials, Karla averaged 10 units higher than Karl in Agtron reflectance (67 vs 57), but 1.9 percentage points lower than Karl in malt extract (80.0 vs 81.9), 2.6 percentage points lower in soluble protein ratio (38.7 vs 41.3), and 7.6 20° units lower in alpha amylase (37.9 vs 45.5). In 11 related comparisons, Karla averaged 4.0 percentage points higher than 11er in malt extract (80.3 vs 76.3), 2.8 percentage points lower in barley protein percent (11.0 vs 13.8), 6.2 percentage points higher in soluble protein ratio (38.5 vs 32.3), and 70° lower than 'Larker' in diastatic power (163 vs 233). Karla was similar to Larker in these trials in malt extract fine-coarse difference, alpha amylase, and kernel weight.

Breeder and foundation seed will be maintained by the University of Idaho Tetonia Research and Extension Center, P.O. Box 1231, Star Route, Newdale, ID 83436.

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References and Notes

1. Research agronomist, USDA-ARS, UI Aberdeen Research and Extension Center, P.O. Box AA, Aberdeen, ID 83210; and supervisory chemist and director (retired), respectively, USDA-ARS, USDA Barley and Malt Laboratory, 501 North Walnut St., Madison, WI 53705. Idaho Agric. Exp. Stn. research paper no. 85739. Registration by the Crop Sci. Soc. of Am. Accepted 5 Dec. 1984. We gratefully acknowledge the assistance of R.M. Hayes and M.A. Chapman, USDA-ARS agricultural research technician, USDA Barley and Malt Laboratory, Madison, WI, in the development and evaluation of Karla.

REGISTRATION OF 'LEWIS' BARLEY

'Lewis' barley (Hordeum vulgare L.) (Reg. no. 193, CI 15856), was developed cooperatively by USDA-ARS and the Montana Agricultural Experiment Station and released for commercial production in March 1985. Lewis is a selection from the cross 'Hector'/'Klages' and is a sister selection of 'Clark' and 'Larker'. The initial cross was made at Bozeman in 1973. The F_{3} selection, MT 547123, was tested in Montana and Western Regional Barley nurseries from 1976 through 1982. Five uniform progeny rows selected from MT 547123 were bulked to form Lewis, which was tested in 1983 Montana and Regional trials.

Lewis is a two-rowed, white-aleuroned, spring, midseason barley. It has midflax, midlong spikes which are seminodding before maturity and nodding at maturity in a manner similar to Hector. The spike has rough awns, glume awns equal to the length of the glume, glumes which are covered with long hairs, and rachis edges with long hairs. The midsized kernels have long haired rachillas and adhering and finely wrinkled hulls without barbs on the lateral veins.

Compared to Klages, Lewis is 3 days earlier in heading, has 11% more plump kernels, is equal in height, and has better lodging resistance. Lewis showed more tolerance to

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