indicate that Hundred is slightly more winterhardy than Boyer, Hesk, or Showin and similar to Kamiak, which is the most winterhardy barley cultivar grown in the Pacific Northwest. Hundred heads ≈ 3 d earlier than Showin, about the same time as Boyer or Hesk, and ≈ 5 d later than Kamiak. Diseases are of little consequence to winter barley in dryland areas of the Pacific Northwest, but observations indicate that Hundred is more resistant than Kamiak, Boyer, Showin, or Hesk to seedling, Cephalosporium gramineum Nis. & Ika., and erysipe granimini DC. fsp. hordei Em. Marchal, respectively.

Hundred is classified as a feed barley. The average grain protein concentration measured across 16 location-years in Washington was 13.4%, which was similar to the average of Kamiak, Boyer, Showin, or Hesk in Washington. Swine feeding trials indicate that Hundred has nutritional quality slightly greater than that of Kamiak, Boyer, or Showin and about the same as that of Hesk. Micro-malting tests indicate there is some potential for Hundred to be accepted by the malting and brewing industry.

The cultivar name, Hundred, was chosen to reflect the centennial anniversaries of the State of Washington (1989) and Washington State University (1990).

Breeder seed stock is maintained by the Washington Agricultural Research Center at Pullman, WA 99164 and the Washington State Crop Improvement Association (WSCIA) at Yakima, WA 98901. Foundation Seed is available through the WSCIA. Seed production through Washington State University, Washington State Department of Agriculture, and WSCIA certification will proceed from breeder through foundation, registered, and certified seed classes.

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References and Notes

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REGISTRATION OF 'WALDERN' OAT

'Waldern' spring oat (Avena sativa L.) (Reg. no. CV-325, PI 538414) was developed at the Agriculture Canada Research Station, Lacombe, AB, from a cross made in 1976 between 'Gemini' (1) and 'Cascade' (2). The F1 generation was grown in the field, and the F2 through F5 were advanced in growth chambers by single-seed descent. Waldern was selected in 1983 from ≈ 550 F2 lines grown in a panicle-row nursery at Lacombe. It was tested as LAO-403-106 in the Preliminary Oat Yield Test in 1984, and in the Alberta Project Oat Test in 1985. Waldern was advanced to the Western Cooperative Oat Test in 1986 and evaluated for 3 yr under the experimental designation OT755. Registration no. 3201 for this cultivar was issued by the Plant Health and Plant Products Directorate, Food Production and Inspection Branch, Agriculture Canada, on 1 Feb. 1990.

Juvenile plants of Waldern are erect and have medium-green leaves. Adult plants are medium tall, with medium-thick and strong culms. The uppermost node and internode are glabrous. Tillering is intermediate. The flag leaf is erect, midwidth, midlong, and medium green in color. A ligule is present at the base of the flag leaf. The penultimate leaf is drooping and has smooth margins and leaf sheath.

The panicle is equalateral, spreading, medium wide and long, and ovate in shape. The rachis is straight to slightly flexuous and has a smooth surface. The rachilla is midlong and glabrous. The spikelets are nodding and produce one or two florets, except the terminal spikelets, which may produce three fertile spikelets. Spiket separation is by fracture and floret separation is by disarticulation.

The empty glumes are midlong to long, widely lanceolate, and pointed. The lower glume is slightly shorter than the upper one, both are boat-shaped or arched. Awning varies according to location and climate. The observed number of awns ranges from none to a few. When present, the awn is long, straight, and weak. The lower portion of the awn may have a dark coloration. The lemma is pointed, long, medium wide to wide, and glabrous. Basal hairs are absent. The second floret rachilla segment is long, narrow, slightly clavate, and flattened. The kernels are long, medium wide to wide, plump, and yellow in color. Most kernels are fluorescent.

Waldern offers a well-adapted, high-yielding alternative to common full-season cultivars grown in the rust-free areas of Western Canada. In 3 yr of testing in Alberta and Western Saskatchewan (20 location-yr), Waldern averaged 5180 kg ha−1, which is 6 and 3% more than 'Calibre' and Cascade, respectively. During 3 yr of testing in the Alberta Regional Oat Test, Waldern yielded 4 and 7% more than Cascade and Calibre, respectively. Waldern is equal to Cascade and superior to Calibre in lodging resistance. It matures 1 d earlier than Calibre and ≈ 2 d later than Cascade. It is intermediate in plant height, and measures ≈ 2 to 3 cm taller than Cascade or Calibre.

In 3 yr of testing across Western Canada, Waldern averaged 83% plump kernels; Calibre and Cascade averaged 61 and 50% plump kernels, respectively. In the same samples, the percentages of thin kernels in Waldern, Cascade, and Calibre were 1, 3, and 5%, respectively. Waldern averages 46 mg kernel−1, whereas Calibre and Cascade averaged 35 mg kernel−1. Although Waldern is similar to Calibre and Cascade in respect to kernel size and kernel plumpness, it is not equal to either cultivar in test weight.

Waldern is resistant to Victoria blight [caused by Bipolaris victoriae (F. Meehan & Murphy) Shoemaker], moderately susceptible to barley yellow dwarf virus (BYDV) and smut [caused by Ustilago avenae (Pers.) Rostr.;] and susceptible to oat crown rust [caused by Puccinia coronata Corda var. avenae W.P. Fraser & Ledingham] and oat stem rust [caused by Puccinia graminis Pers.:Pers. fsp. avenae Eriks & E. Henn.].

Breeder seed of Waldern was developed from a balanced composite sample of ≈ 200 panicle-row plots. Each plot originated from a single panicle and was selected for uniformity. Breeder seed will be maintained by the Agriculture Canada Experimental Farm located at Indian Head, SK. Multiplication and distribution of other classes of pedigreed seed will be handled by SeCan Association, Suite 512, 885 Meadowlands Drive, Ottawa, ON, K2C 3N2, Canada.

SOLOMON KIBITE* (3)

References and Notes