Registration of 88Ab536-B Barley Germplasm

Winter barley (Hordeum vulgare L.) selection 88Ab536-B (Reg. no. GP-133, PI 595789) was developed cooperatively by the USDA-ARS and the Idaho Agric. Exp. Stn. It was approved for release as germplasm by the Univ. of Idaho Foundation Seed Stocks Committee in December 1995 on the basis of its superior malting quality compared with existing six-rowed winter barleys.

The six-rowed winter barley selection 88Ab536 originated at Aberdeen, ID, as an F6 head row from the cross NE 76129/2* ‘Morex’ (made at Beltsville, MD). The F1 through F6 generations were grown at the Univ. of Idaho Aberdeen Res. & Ext. Ctr. and selections were made in the F2 through F6 generations. 88Ab536 has been tested in replicated trials in Idaho since 1989, and in the Western Winter Barley Nursery and the Uniform Barley Winter-hardiness Nursery over a wide range of U.S. environments. Selection 88Ab536-B is a breeder seed composite of 36 selections from 88Ab536 that were grown in a nonreplicated trial at Aberdeen and selected for morphological uniformity, maintaining favorable malting quality. 88Ab536-B is more uniform than 88Ab536, and it has only lax spikes with rough awns, whereas 88Ab536 has a low frequency of dense spikes. It is relatively early maturing. Kernels have a white aleurone and long rachilla hairs.

In four station-years of testing in irrigated trials at Aberdeen from 1989–1990 to 1993–1994, the yield of 88Ab536 (or 88Ab536-B) averaged 8364 kg ha⁻¹, or 78% of ‘Eight-Twelve’ and 87% of ‘Schuyler’; the three barleys were similar in test weight and lodging resistance. Selection 88Ab536 averaged 5 cm taller than Schuyler and 10 cm taller than Eight-Twelve. It headed 5d earlier than Eight-Twelve and 10 d earlier than Schuyler. Eight-Twelve and Schuyler are important feed barley varieties, but not suitable for malting and brewing. In irrigated trials at Aberdeen in 1993–1994 and 1995–1996, 88Ab536-B averaged 104% of the yield of the European six-rowed barley ‘Pleasant’.

88Ab536-B has superior malting quality compared with other six-rowed winter cultivars such as Plaisant and Wintermalt, with an overall malting quality pattern similar to that of the recurrent spring parent, Morex (Table 1). Morex is the designated malting quality standard for six-rowed malting barley in the USA. Compared with other winter malting types, 88Ab536-B is markedly improved in having higher malt extract percentage, higher diastatic power and α-amilase activity, and lower fine-coarse (F/C) difference.

Seed is available in small quantities for breeding and research purposes from the USDA-ARS National Small Grains Germplasm Research Facility, P.O. Box 307, Aberdeen, ID 83210.

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Registration of Orchardgrass Germplasms KY 07G23-334 and KY 07G23-336

KY 07G23-334 (Reg. no. GP-3, PI 597358) and KY 07G23-336 (Reg. no. GP-4, PI 597359) orchardgrass (Dactylis glomerata L.) germplasms were developed cooperatively by the Ky. Agricultural Experiment Station and the USDA-ARS and approved for release in 1996 because of their improved rust resistance and hardiness in Kentucky. They may be of interest to forage breeders wishing to use germplasm derived from the cultivar Boone adapted to the mid-South region of the USA.

Both populations were selected from Boone. A 2-yr plant nursery of Boone containing approximately 1400 plants was subjected to one cycle of phenotypic selection for vigorous growth habit, panicle production, leafiness, resistance to stem rust (caused by Puccinia graminis Pers.:Pers. var. nicola Z. Urban). KY 07G23-334 was tested in seven forage yield trials as Population I or KYEXP1 and KY 07G23-336 was tested as Population III or KYEXP3. KY 07G23-334 is a barley-type orchardgrass developed by intermating seven selected clones that display greater leaf area, more leafiness and upright growth habit, later maturity, and improved resistance to rust as compared with the parent variety.

Seven additional clones selected for darker green color, improved leaf and stem growth, resistance to scald and rust were polycrossed to form KY 07G23-336. Both populations were entered in six forage yield trials beginning in 1992. In Kentucky, mean dry matter yields of KY 07G23-334 and KY 07G23-336 from three trials were 106 and 110%, respectively, of the mean yield of Boone. Maturity of KY 07G23-334 was significantly later than Boone, ‘Potomac’, and ‘Benchmark’; maturity of KY 07G23-336 was not significantly different from Boone. Both populations showed greater leaf rust resistance than Boone in field trials in Iowa.

Seed will be maintained by the Kentucky Agricultural Experiment Station. Small quantities of seed are available upon request from the corresponding author. We request that appropriate source be given if this germplasm contributes to the development of new cultivars or germplasms.

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References and Notes

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