References and Notes

1. Dep. of Agronomy, Louisiana State Univ. Agric. Exp. Stn. (LAES), Baton Rouge, LA 70803-2110. Approved for publication by the Director of the LAES, Manuscript no. 98-09-0251. Research supported in part by the Louisiana Soybean and Feedgrain Research and Promotion Board. Registration by CSSA. Accepted 31 Dec. 1998. *Corresponding author (sharrison@agctr.lsu.edu).

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Registration of ‘Bay’ Oat

‘Bay’ spring oat (Avena sativa L.) (Reg. no. CV-356, PI 572571) was developed by workers in the Department of Agronomy, College of Agricultural and Life Sciences, University of Wisconsin–Madison, and was released in February 1995. The parentage of Bay is ‘Hazel’/6/‘Holden’/Irr.4/‘Garland’/26x amphiploid/2*Clav 6936/3/Garland/5/‘Noble’. The final cross, Hazel/X4033-2, was made in the greenhouse in the spring of 1981.

The breeding history of Bay is unique, in that one of the initial progenitors was a crown rust (caused by Puccinia coronata Corda. var. avenae W.P. Fraser & Ledingham) resistant 6x amphiploid from a tetraploid x diploid cross (1,3,4), and irradiation with thermal neutrons in 1968 was a key step in stabilizing genes from a monosomic alien substitution line (6,7), the ultimate donor of the gene or genes for resistance to crown rust.

Bay was developed using the pedigree method of breeding. Primary selection criteria in the F2 through F6 generations were resistance to crown rust, lodging resistance, agronomic appearance, and high grain quality (as measured by kernel filling, groat percentage, and size and shape of kernels and groats). In 1986, an F6-derived F6 line was selected, cut and threshed in bulk, and designated experimental line X5445-4, which ultimately became Bay. Line X5445-4 was entered in a preliminary yield trial at Madison, WI, in 1987. It was advanced to the main Madison nursery trial, advanced to drill plot trials at Arlington, WI, and statewide trials in 1988 and 1989. It was entered into all of the above trials and the USDA-ARS Uniform Midseason Oat Performance Nursery in 1989 and 1990.

Bay is late in maturity, heading about 5 d later than ‘Ogle’ (2) and 1 d later than ‘Porter’ (5). Plant height of Bay is medium-short, averaging 2 to 3 cm shorter than Ogle. Bay has large, broad leaves and very stiff straw and was rated 25% lower in lodging than ‘Porter’ in statewide trials. Bay has high grain yield and groat protein percentage, and intermediate test weight. In Wisconsin tests for the 3-yr period 1991 to 1993, grain yield averages for Bay exceeded those of all current varieties tested. Bay ranked 3rd for the 3-yr period 1990 to 1992. Mean forage yield of Bay exceeded the average of ‘Ensiler’ by 582.4 kg ha. Ensiler is a Wisconsin forage oat released in 1990 and was used as the standard for forage oat production.

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Bay has yellow, nonfluorescent, broad kernels. When pressed, Bay has a smooth texture, and size and shape of kernels and groats). In 1986, an F5 and high grain quality (as measured by kernel filling, groat percentage, and intermediate test weight. In Wisconsin tests for the 3-yr period 1991 to 1993, grain yield averages for Bay exceeded those of all current varieties tested. Bay ranked 3rd for the 3-yr period 1990 to 1992. Mean forage yield of Bay exceeded the average of ‘Ensiler’ by 582.4 kg ha. Ensiler is a Wisconsin forage oat released in 1990 and was used as the standard for forage oat production.

When released, Bay was resistant to crown rust races CR13, CR20, CR36, CR50, CR152, CR169, CR200, GR50, CR152, CR169, CR200, PC264B. Resistance has broken down, however, in the Upper Midwest. Bay has been susceptible to prevalent races of crown rust. Bay is moderately susceptible to barley yellow dwarf virus in screening tests at Urbana, IL.

Designated classes of certified seed of Bay are Breeder, Foundation, and Certified. Breeder seed of Bay was developed by workers in the Department of Agronomy, University of Wisconsin. U.S. plant variety protection, with the Agricultural Research Station as owner, was granted in April 1995 (PVP Certificate no. 9400017).

Limited quantities of seed for research may be obtained upon request from the corresponding author. Recipients of seed are asked to make appropriate recognition of the source of Bay if it is used in the development of a new cultivar, germplasm, parental line, or genetic stock.

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