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’/3/‘Garland’/2/6x 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) resistant 6x amphiploid from a tetraploid × 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 F7 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 F2-derived F3 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 good 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 among 33 entries in the Uniform Midseason Oat Performance Nursery in 1989, and ranked 16th among 36 entries in 1990.

Bay was entered in the oat forage yield trial at Madison for the 3-yr period 1990 to 1992. Mean forage yield of Bay exceeded the average of ‘Ensigar’ by 582.4 kg ha⁻¹. ‘Ensigar’ is a Wisconsin forage oat released in 1990 and was used as the standard for forage oat production.

Juvenile plants of Bay are erect. Leaves are glabrous, with ligules present. Culms are large, and culm nodes are hairy. Panicles are equilateral and midlong, with spreading branches. The rachis is erect to slightly flexuous. Spikelets separate from their pedicels by fracture, and florets separate by disarticulation of their rachilla segments, which are hairless. Glumes are glabrous. Lemmas are glabrous, and awns are infrequent. When present, awns are not twisted. Bay has yellow, nonfluorescent, broad kernels.

When released, Bay was resistant to crown rust races CR13, CR20, CR36, CR50, CR152, CR169, Pc58, Pc59, Pc62, and Pc264B. Resistance has broken down, however, and in recent field trials in the Upper Midwest, Bay has been rated highly susceptible to prevalent races of crown rust. Bay is resistant to oat stem rust (caused by Puccinia graminis Pers.:Pers. f. sp. avenae Eriks. & Henn.) race NA16, but susceptible to races NA8, NA25, NA27, and NA27. Bay has been moderately resistant to bulk collections of loose smut (caused by Ustilago avenae (Pers.) Rostr.) Wisconsin and Minnesota tests. Bay was intermediate in resistance 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 is being maintained by the Department of Agronomy, University of Wisconsin–Madison. U.S. plant variety protection, with the Wisconsin Agricultural Research Station as owner, was granted in April 1995 (PVP Certificate no. 9400017).

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

R. A. FORSBERG, H. F. KAEPPLER,* AND R. D. DUERST (8)

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 (dkkaeppl@agreg.lsu.edu).

The authors acknowledge the significant contributions of the Florida Agricultural Experiment Station, the USDA-ARS at Aberdeen, ID, and the USDA-ARS Cereal Disease Laboratory at St. Paul, MN. Donation of the original breeding material by Northrup King Seed Company (Novartis Seeds, Inc.) is also acknowledged.


Registration of ‘Belle’ Oat

‘Belle’ spring oat (Avena sativa L.) (Reg. no. CV-357, PI 572522) 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 Belle is ‘Don’/7/‘Ascensao’/‘Fayette’/4/‘Clintland’/3/‘Gary’/2/‘Hawkeye’/‘Victoria’/5/‘Goodfield’/‘Simons’ 38-241-26/‘Holden’/3/‘Garland’/2/6x amphiploid/2*Clav 6936/3/Garland/5/‘Frank’. The final cross, Don/X3969-2, was made in the spring of 1982 in the greenhouse.

The breeding history of Belle 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 × 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.

When released, Belle was resistant to crown rust races CR14, CR20, CR36, CR50, CR152, CR169, Pc58, Pc59, Pc62, and Pc264B. Resistance has broken down, however, and in recent field trials in the Upper Midwest, Belle has been rated highly susceptible to prevalent races of crown rust. Belle is resistant to oat stem rust (caused by Puccinia graminis Pers.:Pers. f. sp. avenae Eriks. & Henn.) race NA16, but susceptible to races NA8, NA25, NA27, and NA27. Belle has been moderately resistant to bulk collections of loose smut (caused by Ustilago avenae (Pers.) Rostr.) Wisconsin and Minnesota tests. Bay was intermediate in resistance to barley yellow dwarf virus in screening tests at Urbana, IL.

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

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

R. A. FORSBERG, H. F. KAEPPLER,* AND R. D. DUERST (8)

References and Notes

8. Dep. of Agronomy, Univ. of Wisconsin–Madison, 1575 Linden Dr. Madison, WI 53706. Registration by CSSA. Accepted 31 Dec. 1998. *Corresponding author (dkkaeppl@facstaff.wisc.edu).

Published in Crop Sci. 39:878 (1999).