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centage, and size and shape of kernels and groats. In 1977, F5 line X4024-7 was cut and threshed, and this line ultimately became Centennial. X4024-7 was entered in preliminary yield trials at Madison, WI in 1978 and 1979, and was advanced to the main Madison nursery trial of 100 entries, the drill plot test at Arlington, WI, and statewide trials in 1980. It was tested in the USDA Uniform Midseason Oat Performance Nursery in 1981 and 1982.

Centennial is midseason in maturity, heading about 1 d later than Ogle (2) and 4 d earlier than 'Porter' (5). Plant height is intermediate, i.e., 5 cm taller than Ogle but 10 cm shorter than ' Steele'. Straw strength is average, but the straw retains its structure and does not degenerate rapidly at maturity. Centennial has yellow kernels, high test weight, above-average groat percentage, and plump groats. Kernels are non-fluorescent under ultraviolet light. In Wisconsin tests for the 3-yr period 1980 to 1982, grain yield averages for Centennial exceeded those of other current cultivars except Ogle and Porter.

Juvenile plants of Centennial are erect. Leaves are glabrous with ligules present. Culms are midsized and culm nodes are glabrous. Panicles are equilateral and midlong, with spreading branches. The rachis is erect to slightly flexuous. At maturity, the spikelets and panicles have a unique "beady" appearance which phenotypically differentiates Centennial from other oat cultivars. Spikelets separate from their pedicles by fracture, and florets separate by disarticulation of their rachilla segments which are hairless. Glumes are glabrous. Lemmas are glabrous, and awns are absent. As in Ogle, the groat oil level of Centennial is low (50 g kg⁻¹), compared to higher levels (60 to 90 g kg⁻¹) found in certain other currently grown cultivars.

Centennial is resistant to crown rust races 264B, 305, 326, Pç-47, and Pc-53, and it possesses the AB genes for resistance to stem rust (Puccinia graminis Pers.:Pers. f. sp.avenae Eriks & E. Henn.). Centennial has been resistant to loose smut (Ustilago avenae (Pers.) Rostr.) in Wisconsin and Minnesota tests, and has the highest level of tolerance to stem Septoria [Saragonospora avenae (A.B. Frank) Bissett] among current oat cultivars. It has been moderately susceptible to the barley yellow dwarf virus in screening tests at Urbana, IL, but it has demonstrated good field tolerance in nurseries and commercial fields in Wisconsin.

Designated classes of certified seed of Centennial are breeder, foundation, registered, and certified. Breeder seed of Centennial is being maintained by the Department of Agronomy, University of Wisconsin-Madison. Plant Variety Protection No. 8400025, with the Wisconsin Agricultural Experiment Station as owner, was issued in June 1987.

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References and Notes


REGISTRATION OF 'HORICON' OAT

'HORICON' SPRING OAT (Avena sativa L.) (Reg. no. CV-326, PI 537116) was developed by workers in the Department of Agronomy, College of Agricultural and Life Sciences, University of Wisconsin—Madison, and was released in February 1989. The parentage of Horicon is 'Holden'/Irr.-4/Garland/2/6x amphiploid/2CI 6936/3/Garland/5/Froker/6/Ogle'. The final two crosses were N569-42-51/Froker and X3350-47/Ogle, the last made in 1978.

The breeding history of Horicon is similar to that of Centennial in that (i) one of the initial progenitors was a crown rust [Puccinia coronata (Corda) var. avenae (W.P. Fraser & Ledingham)] resistant 6x amphiploid from a tetraploid X diploid interpediory cross (3,4,5), and (ii) irradiation with thermal neutrons in 1968 was a key step in stabilizing genes from a mosaic race alien substitution line (7,8), the ultimate donor of the gene or genes for resistance to crown rust.

Horicon was developed using the pedigree method of breeding. Primary selection criteria in the F3 population (X4872) and among F5, F6, and F7 lines were resistance to crown rust, stiff straw, agronomic appearance, and high grain quality as measured by kernel filling, groat percentage, and size and shape of kernels and groats. In 1982, the F9 line X4872-2 was cut and threshed, and this line ultimately became Horicon. X4872-2 was evaluated in a preliminary yield trial at Madison, WI, in 1983; was advanced to the main Madison nursery trial of 100 entries and to statewide performance trials in 1984, and was entered in the drill plot test at Arlington, WI, in 1985. It was tested in the USDA Uniform Midseason Oat Performance Nursery in 1987 and 1988.

Horicon is midseason in maturity, heading about 1 d later than Ogle (1) and 4 d earlier than 'Porter' (6). Plant height is intermediate: i.e., 7 to 8 cm taller than 'Hazel' (2) and 10 cm shorter than 'Steele'. Straw strength is excellent, equaling that of Ogle. Horicon has tan kernels with about a 7 to 8 cm taller than 'Hazel' (2) and 10 cm shorter than 'Steele'. Straw strength is excellent, equaling that of Ogle. Horicon has tan kernels with a high groat percentage and average test weight. Approximately 99.2% of the kernels are fluorescent under ultraviolet light, with 0.8% nonfluorescent. In Wisconsin tests for the 3-yr period 1980 to 1982, grain yield averages for Horicon exceeded those of other current cultivars except Ogle and Porter.

Juvenile plants of Horicon are erect. Leaves are glabrous, with ligules present. Culms are midsized and culm nodes are glabrous. Panicles are equilateral and midlong, with spreading branches. The rachis is erect to slightly flexuous. At maturity, the spikelets and panicles have a unique "beady" appearance which phenotypically differentiates Horicon from other oat cultivars. Spikelets separate from their pedicles by fracture, and florets separate by disarticulation of their rachilla segments which are hairless. Glumes are glabrous. Lemmas are glabrous, and awns are absent.

Horicon is resistant to crown rust races 264B, 326, Pç-59, and Canadian races 13,20,36,50, and 169. It is resistant to stem rust (Puccinia graminis Pers.:Pers. f. sp.avenae Eriks & E. Henn.) races NA 8 and NA 16, but susceptible to races NA 25, NA 26, NA 27, and NA 28. This reaction pattern is typical of genotypes with the AB genes for stem rust resistance. Horicon has demonstrated moderately good resistance to a bulk collection of Wisconsin races of loose smut (Us-