REGISTRATION OF 'WRIGHT' OAT

'Wright' spring oat (Avena sativa L.) (Reg. no. CV-329, CI 9218, PI 546034) was developed by workers in the Department of Agronomy, College of Agricultural and Life Sciences, University of Wisconsin-Madison, and was released in January 1975. The pedigree of Wright is 'Trispernia' × 'Belar'/2/Beedee/3/Beedee/4/Beedee. Selections X660, X1289, and X1265 were the three female parents crossed to Beedee in 1961 (greenhouse), 1961 (field), and 1963, respectively. Wright was released because it had high grain yield and test weight, a broad spectrum of disease resistance, and wide adaptation.

Wright was developed using the pedigree method of breeding after the third and final cross with Beedee (4), i.e., X1265 BCF/Beedee. Primary selection criteria in the F₁ population (X1641) and among F₂, F₃, and F₄ lines were resistance to crown rust [Puccinia coronata (corda) var. avenae (W.P. Fraser & Ledingham)] and stem rust (Puccinia graminis Pers.:Pers. f. sp. avenae Eriks & E. Henn.), standability, agronomic appearance, and high grain quality as measured by kernel filling, groat percentage, groat protein concentration, and size and shape of kernels and glumes. In 1968, F₄ line X1641-2 was cut and threshed, and this line ultimately became Wright. X1641-2 was evaluated in a preliminary yield trial at Madison, WI, in 1969 and in the main Madison nursery trial of 100 entries in 1970. It was advanced to the drill plot trial at Arlington, WI, and to other statewide trials in 1971 and was tested in the USDA Uniform Midseason Oat Performance Nursery (UMOPN) from 1972 to 1974. At the time of release, Wright had the highest test weight of any cultivar being grown in the North Central USA. It ranked first for this trait in Wisconsin tests for two consecutive 3-yr periods, 1972 to 1974 [20 tests, mean of 485 kg m⁻³ (37.7 lbs/bu)] and 1973 to 1975 [21 tests, mean of 493 kg m⁻³ (38.3 lbs/bu)]. Wright also ranked first for test weight in each of the 3 yr that it was entered in the UMOPN.

Wright is midseason in maturity, heading about 2 d later than Stout (2) and 3 d earlier than Dal (6). Wright is tall, i.e., 7 to 9 cm taller than Dal and Beedee but 5 cm shorter than Lodi (5). Straw strength, as measured by the snap-back method, equals that of 'Holden' (1), 'Chief' (3), and 'Froker' (7), i.e., intermediate between 'Stout' (very stiff) and Beedee. Wright has light-tan kernels with above-average groat percentage. Great protein values for Wright are moderately high, averaging about 12 g kg⁻¹ below the high-protein cultivar Dal. Approximately 99.9% of the kernels are fluorescent under ultraviolet light, with 0.5% nonfluorescent. Like Dal, groat oil concentration of Wright is relatively high at 85 g kg⁻¹. Grain yields of Wright equaled those of Dal and exceeded yields of other cultivars grown in the North Central states at the time of release.

Juvenile plants of Wright are erect. Leaves are glabrous with ligules present. Culms are midsized and culm nodes are glabrous. Pandicles are equilateral and slightly long (22 cm), and have spreading branches which droop at maturity. The rachis is straight. 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 absent. Primary and secondary kernels are more nearly alike in size than in nearly all other oat cultivars, and the groat crease is very tight. Both of these characteristics probably contribute to the high test weight of Wright. Groat color is a light pinkish-tan compared to shades of brown or white that are most frequently observed in other cultivars.

At the time of release (1975), Wright was resistant to crown rust races 202, 216, 239, 263, 290, and 326, but susceptible to races 264A, 264B, and 305. Genes for resistance could be traced to Victoria in the pedigree of Beedee or to Belar or Trispernia in the pedigree of selection X660. Wright has the A gene for stem rust resistance, which conditions resistance to races 7 and 7A, using earlier race nomenclature. It is also resistant to race 2AH (US19 or C24). Using current nomenclature, Wright would have an avirulence/virulence genotype of 2/1,3,4,8,9 and is resistant to current stem rust races NA 8 and NA 16 but susceptible to races NA 25, NA 26, NA 27, and NA 28. Wright is resistant to older Wisconsin races of smut [Ustilago avenae (Pers.) Rostr.] and is less susceptible to the new "Lodi" races than many other cultivars.

Wright was relatively popular in Wisconsin, and a small acreage of certified seed was still being produced in 1989, 14 yr after release. Designated classes of certified seed of Wright are breeder, foundation, registered, and certified. Breeder seed has been maintained by the Department of Agronomy, University of Wisconsin-Madison. Plant Variety Protection Certificate No. 7600036, with the Wisconsin Agricultural Experiment Station as owner, was issued in October 1976.

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References and Notes


REGISTRATION OF 'CENTENNIAL' OAT

'Centennial' spring oat (Avena sativa L.) (Reg. no. CV-328, PI 476810) was developed by workers in the Department of Agronomy, College of Agricultural and Life Sciences, University of Wisconsin-Madison, and was released in February 1983. The pedigree of Centennial is 'Holden'/Irr-4/Garland/2/6x amphiploid/2*C16936/3/Garland/5/'Froker'/Stormont'. The final cross, N569-G4-G65-3/X2449-1, was made in 1973.

The breeding history of Centennial is unique 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 × diploid interpyloid cross (1,3,4), and (ii) 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(s) for resistance to crown rust.

Centennial was developed using the pedigree method of breeding. Primary selection criteria in the F₂ population (X4024) and among F₃, F₄, and F₅ lines were resistance to crown rust, lodging resistance, agronomic appearance, and high-grain quality as measured by kernel filling, groat per-