from 20 to 27% while for the check cultivars it ranged from 32 to 42%. These lines are moderately to highly resistant to stripe rust (caused by Puccinia striiformis West.). Their grain protein contents at Bozeman in 1984 were 12.5 to 14.4%, but their other quality characteristics are unknown. While they have survived well under snow cover at Bozeman, their winterhardiness has not yet been determined.

These lines are comparable in yield, both inoculated and control, to that of ‘Winridge’ (CI 17902), a hard red winter wheat released in 1981 by the Montana Agricultural Experiment Station with partial resistance to Cephalosporium stripe (2). However, one of these germplasm lines (PI 499375) derives its resistance from a different source than does Winridge. These lines head 6 to 8 days earlier and are 10 to 30 cm shorter than Winridge. They should be of value as germplasm to breeders who may want to improve the Cephalosporium stripe resistance of their breeding materials.

Germplasm amounts of seed are available from D.E. Mathre, Department of Plant Pathology, Montana State University, Bozeman, MT 59717.

D. E. Mathre, R. H. Johnston, and J. M. Martin (3)

References and Notes

PI 468960 (Triticum aestivum L.) (Reg. no. GP-277) was developed cooperatively by the Idaho Agricultural Experiment Station and the USDA-ARS. It was released in 1983 as germplasm resistant to Hessian fly (Mayetiola destructor Say). PI 468960 resulted from the cross ‘Springfield’ x ‘Asosan’/ ‘Federation’/ A63166S-A-50-45-4/2*Springfield/5/‘Oasis’/3/5/**Twin’/ID0021/PI 227196/A63166S-A-2-8 made in 1975 at the University of Idaho Aberdeen Research and Extension Center. It is comprised of 19 Hessian fly, stripe rust (caused by Puccinia striiformis West), leaf rust (caused by Puccinia recondita Rob. ex Desm. f. sp. tritici), and powdery mildew (caused by Erysiphe graminis DC. f. sp. tritici E. Marchal) resistant lines selected from 167 F7 plants segregating for reaction to Hessian fly and powdery mildew. The F7 plants evolved from a single F6 plant, the progeny of which segregated for reaction to Hessian fly and powdery mildew.

PI 468960 carries the H3 gene for fly resistance which gives it resistance to the Washington population, the Great Plains biotype and biotypes A and C of Hessian fly. Powdery mildew resistance was obtained from the Asosan parent which carries the Pm3a gene. Pm3a has controlled resistance to mildew cultures found in the West. In addition to being the first Hessian fly resistant soft white spring wheat, PI 468960 has the fly resistance on chromosome 5A and mildew resistance on chromosome 1A linked by a 1A-5A translocation which is intermediate in maturity and has moderate straw. It is similar to Twin in most agronomic characteristics.

Grain yields of PI 468960 have averaged from 95 to 104% of ‘Owens’ in irrigated trials at Aberdeen and Twin Falls. In the non-irrigated trials at Teton, it has yielded 100% of Owens. It has a grain test weight similar to Twin. The milling and pastry quality of PI 468960 is satisfactory. PI 468960 would be potentially useful as a commercial cultivar if either Hessian fly or any other diseases become serious problems in certain areas of the USA. In any event, it will be a useful parent in crosses where resistance to Hessian fly and powdery mildew is needed and possible. Long-term seed storage of PI 468960 is possible. Long-term seed storage of PI 468960 was obtained at the USDA National Seed Storage Lab, Colorado State Univ., Fort Collins, CO 80523. Seed units (in 20 g units) are available from D.W. Sunderman, USDA-ARS, P.O. Box AA, Aberdeen, ID 83210.

D. W. Sunderman, Brendan O’Connell

References and Notes
2. Research agronomist, USDA-ARS, P.O. Box AA, Aberdeen, ID 83210.