The spike of Chisholm is awned, fusiform to oblong, and middense; awns are white and 4 to 7 cm long; glumes are glabrous, white, middling, and narrow to midwise; the shoulders are narrow and square; beaks are narrow, acuminate, and vary from 3 to 6 mm in length; the kernels are red, middling, hard, and elliptical to ovate; the germ is middized; the crease is narrow and shallow; cheeks are rounded; and the brush is midsized and middling.

The cultivar was evaluated in the Southern Regional Performance Nursery in 1982 and 1983 as OK754615E (composite of early maturing reselections). Chisholm has sufficient winterhardiness for Oklahoma and is adapted to all wheat growing areas in the state. The cultivar has an excellent yield record in Oklahoma. In 4 years of state-wide tests (24 environments) during 1980-1983, the average grain yields for Chisholm, 'TAM 105,' 'Vona,' 'TAM W-101,' 'Payne,' 'Newton,' and Triumph 64 were, respectively, 4365, 4163, 3989, 3962, 3955, 3861, and 3457 kg ha⁻¹. Chisholm has good milling and baking properties. It has satisfactory grain protein content, satisfactory flour yield, rather strong dough mixing properties and good loaf volume potential. Chisholm has moderate field resistance to leaf rust incited by Puccinia recondita Rob. ex Desm. f. sp. tritici. It is susceptible to soilborne mosaic virus, wheat streak mosaic virus, and powdery mildew (incited by Erysiphe graminis DC. f. sp. tritici E. Marchal).

Breeder seed of Chisholm will be maintained by the Oklahoma Agric. Exp. Stn. Foundation seed will be available from the Oklahoma Foundation Seed Stocks, Inc., Dep. of Agronomy, Oklahoma State Univ., Stillwater, OK 74078.

E. L. SMITH, O. G. MERKLE, H. T. NGUYEN, D. C. ABBOTT, AND G. H. MORGAN (1)

References and Notes
1. Professor, Dep. of Agronomy; research agronomist, USDA-ARS; assistant professor, Dep. of Agronomy; professor, Dep. of Biochemistry; and senior agriculturalist, Dep. of Agronomy, Oklahoma State Univ., Stillwater, OK 74078. Journal article 4477 of the Agric. Exp. Stn. of Oklahoma State Univ., Stillwater, OK 74078. Investigations were supported in part by the Oklahoma Wheat Commission and Oklahoma Wheat Research Foundation. Registration by Crop Sci. Soc. of Am. Accepted 7 Sept. 1984.

REGISTRATION OF FILLMORE WHEAT

'Fillmore' soft red winter wheat (Triticum aestivum L.) (Reg. no. 692) PI 469272 was developed by the Purdue University Agricultural Experiment Station in cooperation with USDA-ARS and released in 1982. Fillmore resulted from the cross P5724B3-5P-8-2*2/'Siete Cerros'. P5724B3-5P-8-2 and 'Benhur' were derived from the same cross (1). Fillmore and 'Caldwell' were selected from progeny of the same backcross F₂ plant.

Following the backcross, Fillmore was developed by the modified pedigree method of breeding with plant selections made in the F₁, F₂, and F₃ generations. In 1978 in the F₃ generation of selfing, 98 of 100 individual plant progeny rows, judged uniform and similar, were composited. Breeder seed in 1981 was in the F₄ generation of self-pollination.

Fillmore was evaluated as IN65256A1-9-7 for performance in nursery trials for 5 years, 1976 to 1981; in intrastate field plot trials for 3 years, 1979 to 1981; and in the Uniform Eastern Soft Red Winter Wheat Performance Nursery for 2 years, 1980 to 1981. Fillmore appears adapted to the northern half of the eastern soft wheat area. Commercial soft wheat quality was rated good by tests of the Soft Wheat Laboratory, Wooster, OH, 1976 to 1980.

Fillmore is about 6 days later in heading and about 7 cm taller than 'Arthur'. It has a moderate level of winterhardiness like Caldwell. The spike is lax, oblong, apically awned, and yellow at maturity. Glumes are middling and midwide, with rounded shoulders and obtuse beaks. Kernels are red and ovate with a narrow and shallow crease.

Fillmore has adult plant resistance to septoria tritici blotch, incited by Mycosphaerella graminicola (Fuckel) Schroeter; to powdery mildew caused by races of Erysiphe graminis DC. f. sp. tritici E. Marchal occurring in Indiana; to leaf rust caused by Puccinia recondita Rob. ex Desm. f. sp. tritici naturally occurring in Indiana; and to some races of Puccinia graminis Pers. f. sp. tritici Eriks. & Henn.

Fillmore is intermediate in reaction to the soil-borne mosaic virus; moderately susceptible to the wheat spindle streak mosaic soil-borne virus; and moderately resistant to the aphid-borne barley yellow dwarf virus in Indiana.

Fillmore has the H₆ gene for resistance to Hessian fly, Mayetiola destructor (Say), which provides resistance to biotypes GP, A, and B.

Variety protection was applied for under the Plant Variety Protection Act, Public Law 91-577, in conjunction with Title V of the Federal Seed Act. If granted, the owners further specify that Fillmore may be sold for seed only by variety name. Breeder seed is maintained by the Purdue Univ. Agric. Exp. Stn., West Lafayette, IN 47907.


References and Notes
2. F.L.P., Lynn distinguished professor emeritus of agronomy; H.W.O., professor of agronomy; G.E.S., professor of plant pathology; R.E.F., former research associate of plant pathology; R.L.G., research entomologist (retired) USDA-ARS and professor of entomology; J.J.R., research agronomist USDA-ARS and assistant professor of agronomy; and J.E.F., research entomologist USDA-ARS and associate professor of entomology; all at Purdue Univ., West Lafayette, Ind. 47907. Cooperative investigations of the Purdue Univ. Agric. Exp. Stn. and USDA-ARS. The breeding of Fillmore was supported in part by grants from the Indiana Crop Improvement Assoc. Registration by the Crop Sci. Soc. of Am. Purdue Univ. Agric. Exp. Stn. Journal Paper no. 9847. Accepted 7 Sept. 1984.

REGISTRATION OF 'HYCREST' CRESTED WHEATGRASS

'Hycrest' (Reg. no. 16) was released by the USDA-Agricultural Research Service in cooperation with the Utah Agricultural Experiment Station and the USDA-Soil Conservation Service on 18 Apr. 1984.

The parental germplasm was generated by crossing induced tetraploid Agropyron cristatum (L.) Gaertn. with natural tetraploid A. desertorum (Fisch. ex Link) Schult. Initial crosses were made between 1962 and 1967 (1). The genetic base of the hybrid population was established with seven clones each of induced tetraploid A. cristatum and A. desertorum. Reciprocal crosses were made to insure that cytoplasm of both species were represented in the breeding population.

In 1974, open pollination progenies of 295 F₂ hybrid clones were established in a 7000-plant-source nursery on a range site in northwest Utah. After a 2-year evaluation...