REGISTRATION OF CROP CULTIVARS 917

Sage matures 1 day later, is 2 cm shorter, and lodges less than Scout. Sage threshes more easily than Scout and is more inclined to shatter. Sage yielded 'Scout' 66 in regional tests from 1972 through 1976 by 2.4 quintals per hectare, or 7%. In statewide Kansas tests from 1971 through 1976, Sage outyielded Scout 10%, or 3 q/ha.

Quality evaluation of Sage is based on composites from the Kansas Intrasrate Nursery in 1971 and 1972; and composites from the 1972-1976 Southern Regional Performance Nursery. Sage has a distinct advantage over Scout in flour protein, (12.2% vs. 11.8%), but averaged 1% less than Scout in flour yield. The two cultivars appear equal in dough mixing characteristics and loaf volume.

Breeder seed of Sage is maintained at the Ft. Hays Branch Exp. Stn., Hays, KS.

REGISTRATION OF SAGE WHEAT1

(Reg. No. 611)

R. W. Livers2

'GAGE' hard red winter wheat (Triticum aestivum L. em. Thell.), CI 17650, KS70H210, was developed cooperatively by the Kansas Agric. Exp. Stn. and SEA-USDA. Sage has the pedigree 'Agent'/4*Scout. Crossing began at Ft. Hays Branch Exp. Stn. in 1963 with screening for Agent-type resistance to leaf rust (Puccinia recondita Rob. ex Desm.) after each backcross to Scout.8 Sage was a field selection in 1969, an F1 line after the third backcross. It was distributed to growers in 1973 and was grown on more than 10,000 ha (2 million acres) in 1978.

Sage is awned, moderately early in maturity, and has intermediate height and straw strength. Spikes are oblong, middense, and erect to inclined. Glumes are white, glabrous, long, and narrow. Shoulders are narrow, usually wanting on basal spikelets and range through oblique to square at the spike apex. Beaks are midwide, acuminate, 1 to 4 mm long. Kernels are red, hard, long, and elliptical to oval; the germ is small to midsize; the crease is midwide and middeep; and the cheeks are rounded to angular. Sage leaves are distinctly pubescent on ventral surfaces. Hairs are rather sparse and short, up to about 0.3 mm long.

Sage is like Scout in winterhardiness, in weight per bushel, and in field resistance to loose smut (Ustilago tritici (Pers.) Rostr.), both are susceptible to Hessian fly (Mayetiola destructor Say). Distributed in 1973, Kirwin is grown on a limited acreage in central Kansas.

Kirwin is awned, matures early, and has intermediate height and straw strength. The spikes are oblong, middense and inlined. Glumes are white, glabrous, midwide, and midlong. The shoulders are midwide and oblique to square. Beaks are 2 to 10 mm long, midwide and acuminate. Awns are white and 2 to 10 cm long. Kernels are red, hard, midlong, ovate to elliptical; the germ is midsize; the crease is narrow and low; the cheeks are rounded; and the brush is midzised and short.

Both Kirwin and its Parker parent have high weight per bushel and low resistance to leaf rust (Puccinia recondita Rob. ex Desm.). Both are susceptible to stem rust (P. graminis Pers. f. sp. tritici Eriks. and E. Henn.), to bunt (Tilletia caries (DC.) Tul.), to loose smut (Ustilago tritici (Pers.) Rostr.), and to soilborne and streak mosaic viruses. Parker has multigene resistance to Hessian fly derived from 'Marquillo'. Kirwin has been less resistant than Parker in some tests, but has effective resistance to the GP race of fly in central and western Kansas. Kirwin is 1 1/4 days later than Parker, 2 cm taller, and is more susceptible to lodging. It is more winterhardy than Parker, has larger seed, and shatters less. Milling and making properties of Kirwin are satisfactory.9 Shorter mixing time and greater loaf volume of Kirwin are both improvements over Parker. Average yields of the two varieties in Kansas were equal during a 12-year testing period. Kirwin's greater hardness, larger seed, and reduced shattering combine to provide a fly resistant wheat adapted farther north and west of the central Kansas area where Parker has been well accepted.

Breeder seed of Kirwin is maintained at the Ft. Hays Branch Exp. Stn., Hays, KS.

2 Wheat research geneticist, Ft. Hays Branch Exp. Stn.
3 Quality data were provided by K. F. Finney, research chemist.
4 *Inoculum for leaf rust screening was provided by L. E. Browder, research plant pathologist, SEA-USDA, Manhattan, KS.
5 Quality data were provided by K. F. Finney, research chemist.
6 U.S. Grain Marketing Research Center, SEA-USDA, Manhattan, KS.
8 Wheat research geneticist, Ft. Hays Branch Exp. Stn.
9 Quality data were provided by K. F. Finney, research chemist, U.S. Grain Marketing Research Center, SEA-USDA, Manhattan, KS.

REGISTRATION OF LARNED WHEAT1

(Reg. No. 611)

R. W. Livers2

'LARNED' hard red winter wheat (Triticum aestivum L. em. Thell.), CI 17650, KS70H210, was developed cooperatively by the Kansas Agric. Exp. Stn. and SEA-USDA. Its pedigree is 'Ottawa'/*Scout'. Crossing was done at the Ft. Hays Branch Exp. Stn. from 1963 through 1966 to transfer the H1 gene for resistance to Hessian fly (Mayetiola destructor Say) from Ottawa into Scout background. Larned is a 1989 field selection with fly resistance, an F1 line after the fourth backcross to Scout. It was distributed to Kansas growers in 1976.

Larned is awned, intermediate in height and moderately early. Spikes are oblong to fusiform; they are middense and inclined to erect. Glumes are white, glabrous, long, and narrow. Shoulders are narrow, usually wanting on basal glumes, approaching square at midspike and ranging to flat at the top of the spike. Beaks are narrow, acuminate, and 2 to 7 mm long. Awns are white and 3 to 11 cm long. The kernel is red, hard, long, and elliptical to oval; the germ is small; the crease is narrow and deep; the cheeks are rounded; and the brush is midzised and midlong.

Larned is equal to its recurrent Scout parent in winterhardiness, maturity, weight per bushel, and resistance to shattering. Both have field resistance to stem rust (Puccinia graminis Pers. f. sp. tritici Eriks. and E. Henn.), and to loose smut (Ustilago tritici (Pers.) Rostr.). Both are susceptible to leaf rust (P. recondita Rob. ex Desm.), to bunt (Tilletia caries (DC.) Tul.), and to soilborne mosaic virus. Larned is 2 cm shorter and lodges less than Scout. Larned is superior to Scout in low but useful resistance to streak mosaic virus. Both varieties have good milling and baking properties.3 Comparisons from 1972 to 1976 show them equal in flour protein (11.8%). Mixing times averaged 5.1 min for Larned, 5.3 min for Scout. Larned averaged 1% less flour extraction and 4% more loaf volume than Scout. Yield performance of Larned is based on 3 years in the Southern Regional Performance nursery and 5 years of testing at

2 Wheat research geneticist, Ft. Hays Branch Exp. Stn.
3 Assistance in determining reaction to Hessian fly was provided by H. W. Somsen, entomologist, SEA-USDA, Manhattan, KS (now retired).
4 Quality data were provided by K. F. Finney, research chemist.
5 U.S. Grain Marketing Research Center, SEA-USDA, Manhattan, KS.