red, midlong, hard, and ovate; the germ is midsized; the crease is midwide and middeep; the cheeks are rounded to angular; the brush is midsized and midlong. Although Agent is classified as a midseason variety, it is somewhat variable in date of heading. In some seasons it is similar to Triumph in heading date. In other seasons it is as much as 10 days later.

The outstanding characteristics of Agent are resistance to leaf rust and good forage (grazing) properties. It is resistant in the seedling stage as well as the adult plant stage to all known races of leaf rust. In forage production, as evaluated by clipping trials, it has been superior to all other wheat varieties commonly grown in Oklahoma. Since heavily rusted wheat plants appear to be extremely unpalatable to cattle, Agent should have special merit for fall and winter pasturing in those areas where severe epidemics of leaf rust occur.

In addition to its leaf rust resistance Agent also has moderate resistance to some races of stem rust and has some tolerance to Septoria leaf blotch. It is similar to Triumph with regard to other diseases. The test weight of Agent is slightly lower than that of Triumph. On a statewide basis it is slightly lower in grain yield than Triumph; however, it yields as well as Triumph in the eastern part of Oklahoma. Agent is very similar to Triumph in milling and baking characteristics, except that it is lower in water absorption potential of the dough. The primary weakness of Agent is its lack of winterhardiness. It is less winterhardy than Triumph; therefore, it should not be grown in areas with severe winter conditions.

The Oklahoma Agricultural Experiment Station will be responsible for maintenance of breeder seed.

REGISTRATION OF LOGAN WHEAT1

(H. N. Lafever)

'LOGAN', Triticum aestivum L. em. Thell., C.I. 14156, is a soft red winter wheat selected from a 'Vermillion' x 'Lucas' cross. The variety is an increase of a single plant selected in 1959 from an F2, bulk population by the Ohio Agricultural Research and Development Center. The recent discovery that Logan possesses resistance to Race A of Hessian fly indicates an outcross probably occurred early in its development since neither known parent possesses such resistance. Logan was released in the summer of 1968 and distributed by Ohio Foundation Seeds, Inc.

Logan is early to midseason in maturity, short to midtall in height and has strong, white stems. The spike is awnless with small tip awns 6 to 25 mm long, fusiform shaped, middense, and is erect to inclined at maturity. Glumes are white, glabrous, midlong, midwide with shoulder midwide and oblique to square. Beak is midwide to wide and oblong. Kernel is red, midlong and ovate; germ is midsized; crease is midwide and middeep; check is rounded; brush is midsized and short to midlong.

Logan has been tested in Ohio yield trials since 1962 and was first tested in state-wide drill-plot trials in 1964. Performance of Logan can be compared with 'Fulton,' 'Monon,' 'Redcoat,' and 'Reed' in Table 1. Logan was entered in the Uniform Eastern Soft Wheat Nursery in 1966 under number TN 1455. Logan has moderate resistance to currently predominant races of leaf rust and has shown very little loose smut from natural infection. Logan is susceptible to the currently prevalent races of stem rust and is moderately susceptible to Septoria leaf blotch and powdery mildew. Winter hardiness of Logan is excellent. Milling and baking qualities of Logan have been studied by the Soft Wheat Quality Laboratory at Wooster, Ohio, for the past three seasons. Their results indicate no important deviation of Logan from currently grown soft red winter wheat varieties.

Breeder seed will be maintained by the Ohio Agricultural Research and Development Center.

REGISTRATION OF SHAUNEE WHEAT1

(E. G. Heyne and K. F. Finney)

'SHAUNEE', C.I. 14157, KS 60770, Triticum aestivum L. em. Thell., is a hard winter wheat selected in Kansas from the cultivar 'Ottawa.' Shaunee2 is a selection from the cross 'Mediterannean'/'Hope'/'Pawnee'/3/Oto/Illinois No. 1 (W38). The variety is a composite of 41 lines that were resistant to race 56 of stem rust. The 41 lines were selected from Kansas selection number 49-454 that segregated for reaction to stem rust. Ottawa has a medium to short mixing time and only fair mixing tolerance. Quality evaluation of the lines comprising Ottawa indicated differences in physical and baking properties, particularly for one line designated KS 60770. That line had longer mixing time and distinctly better mixing tolerance than Ottawa; it was increased, named Shawnee, and distributed to Kansas growers in the fall of 1967.

Shaunee has the same characteristics as Ottawa, except that it may be slightly later and taller than Ottawa. Those differences can be observed only when the two varieties are grown comparatively. Shawnee resists some leaf rust races, race 56 of stem rust, and soliborne mosaic virus, and it carries the H$_4$ gene for resistance to Hessian fly. Yield and test weight have been equal to or better than Ottawa.

Shaunee has a winter growth habit and matures midseason; the straw is white, fairly short, and strong; the spike is awned, fusiform, and middense; the glumes are brown, glabrous, midlong, and narrow to midwide; the shoulders are midwide and rounded to oblique; the beaks are narrow and about 4 to 8 mm long; the awns are white to light brown; the kernels are red, midlong, and middeep; check is midwide and rounded; brush is midsized and short to midlong.

Shawnee has the same characteristics as Ottawa, except that it may be slightly later and taller than Ottawa. Those differences can be observed only when the two varieties are grown comparatively. Shawnee resists some leaf rust races, race 56 of stem rust, and soliborne mosaic virus, and it carries the H$_4$ gene for resistance to Hessian fly. Yield and test weight have been equal to or better than Ottawa.

Shawnee's superior character is its baking properties. Loaf volume potential is high and crumb grain is above average. Oxidation requirement of Shawnee is relatively small and lower than that of other hard wheats. The mixing time and mixing tolerance are good and Shawnee is classified as a strong gluten hard red winter wheat. Comparative mixing times (4 year average) for Shawnee and Ottawa are 4 minutes and 25.3 minutes. Shawnee resists adverse effects of high temperature and low humidity during baking. Total milling and baking properties of Shawnee equal those of any hard wheat cultivar released in recent years.

Shawnee is genetically stable with a constant low rate of mutation for plants susceptible to race 9 of leaf rust and plants with white glumes. This is the result from irregularity of the behavior of chromosome 6B for leaf rust response and 1B for glume color. A progeny-line procedure to maintain breeder seed of Shawnee is being carried out by the Agronomy Department at Kansas State University.

1 Registered by the Crop Science Society of America. Published with the approval of the Ohio Agricultural Research and Development Center, Wooster, as Journal Paper No. 4-69. Received 4 March 1968.
2 Department of Agronomy, and No. 658, Department of Grain Science and Industry, Kansas State University, in cooperation with Crops Research and Entomology Research Divisions, Agricultural Research Service, U. S. Department of Agriculture, and No. 130, Department of Agronomy. Published with the approval of the Ohio Agricultural Research and Development Center, Wooster, as Journal Paper No. 4-69. Received 4 March 1968.