REGISTRATION OF 'ARAPAHOE' WHEAT

'ARAPAHOE' (Reg. no. 743, PI 518591, NE82656) is a hard red winter wheat (Triticum aestivum L.) developed cooperatively by the Nebraska Agricultural Experiment Station and the USDA-ARS. It was jointly released to seed producers in 1988 by the developing institutions and the South Dakota Agricultural Experiment Station. Arapahoe was selected from the cross 'Brule'/3'Parker*/4'/Agent'/''Beloterkovskiaia 198'/ 'Lancer' made in 1976 by J.W. Schmidt. Arapahoe is an increase of a F₁-derived F₃ line that was identified in 1982 and tested as NE82656.

Arapahoe is an awned, white-glummed cultivar. The spike is mid-dense, tapering, and erect to slightly inclined at maturity. The ears are acuminate and medium in length. The glumes are square shouldered and narrow. When compared to Brule and 'Redland', Arapahoe is 1% percent higher in flour protein content, slightly more winter-hardy, heavier in grain weight, and has a slightly longer coleoptile. Arapahoe is similar to Brule and Redland in flowering date, kernel weight, and plant height. Arapahoe has moderately strong straw, but not as strong as Brule or Redland. The kernel is red colored, hard textured, elliptical to ovate, not collared, and mid-long with rounded cheeks, mid-sized germ, mid-sized brush, and a shallow crease.

Arapahoe has been tested in Nebraska yield nurseries starting in 1983, in the Northern Regional Performance Nursery from 1986 to 1988, and in the Southern Regional Performance Nursery in 1988. Based upon 23 location-years of testing in the Nebraska Varietal Tests (1986 and 1987), the yield of Arapahoe was 108% of Brule and 106% of 'Siouxland'. Based upon 14 location-years of testing in the Nebraska Intrastate Nursery (1985-1987), the yield of Arapahoe was 114% of Brule and 106% of Siouxland.

Arapahoe is moderately resistant to the currently prevalent races of leaf rust (incited by Puccinia recondita Rob. ex. Desm. f. sp. tritici Eriks.) and stem rust (incited by P. graminis Pers. f. sp. tritici Eriks. and E. Henne.; contains Sr6, Sr17, and Sr24) and is believed to be moderately tolerant to Cephalosporium stripe (incited by Cephalosporium graminicola Nis. and Ika.). It expresses the heterogeneous reaction to the Great Plains biotype of Hessian fly (Mayetiola destructor Say), which is believed to indicate the 'Marquillo'- 'Kawvale' type of resistance. It is susceptible to soil-borne mosaic and wheat streak mosaic viruses.

The overall bread making properties of Arapahoe are very similar to Scout 66. Arapahoe has medium dough strength characteristics and is slightly lower in flour yield than Scout 66. The kernels of Arapahoe have been classified, using the existing standards, by the Federal Grain Inspection Service as being hard red winter wheat.

Breeder seed of Arapahoe will be maintained by the Nebraska Agricultural Experiment Station. Arapahoe will be submitted for registration and plant variety protection under P.L. 91-577 with the certification option.


References and Notes

1. P.S. Baenziger, J.W. Schmidt, P.J. Mattern, and A.F. Dreier, Dep. of Agronomy; C.J. Peterson and V.A. Johnson, USDA-ARS and Dep. of Agronomy, Univ. of Nebraska, Lincoln, NE 68583; D.V. McVeY, USDA-ARS Dep. of Plant Pathology, Univ. of Minnesota, St. Paul, MN 55108; and J.H. Hatchett, USDA-ARS and Dep. of Entomology, Kansas State Univ., Manhattan, KS 66506. Arapahoe was developed with partial financial support from the Nebraska Wheat Development, Utilization, and Marketing Board. Cooperative investigations of the Nebraska Agric. Dev. Div., Univ. of Nebraska, and USDA-ARS. Contribution no. 8764 from the Nebraska Agric. Res. Dev. Registration by CSSA. Accepted 30 Nov. 1988. *Corresponding author.

REGISTRATION OF CROP GERMPLASMS

REGISTRATION OF P-3 ALFALFA GERMPLASM

P-3 alfalfa (Medicago sativa L.) germplasm (Reg. no. GP-213 (PI 525455) was released by the New Mexico Agricultural Experiment Station in April 1988. P-3 is recommended as a genetic source to increase phosphorus concentration in forage of alfalfa cultivars. P-3 was developed from 'Wilson' (11%), 'Dona Ana' (11%) 75-189 (11%) (1), 'NM Common' (6%), 'Rincon' (6%), 'WL 312' (17%), 'Apollo' (20%), and 'Vernal' (17%) parentage by three cycles of recurrent phenotypic selection, based on phosphorus concentration in the forage, increased phosphorus concentration in the forage, but not in- affect nontarget mineral concentrations adversely. P-3 had a higher zinc concentration, a lower calcium concentration, and a lower calcium/phosphorus ratio than check populations (2). P-3 had a higher zinc concentration, a lower calcium concentration, and a lower calcium/phosphorus ratio than check populations (3). P-3 responded to phosphorus fertilization by increased phosphorus concentration in the forage, but not increased forage yield when compared to check populations (3).

Forage yield and fall dormancy of P-3 were similar to these of 'Mesilla'. P-3 is resistant to bacterial wilt (caused by Clavibacter michiganense subsp. insidiosum Davis et al., 1984), pea aphid [Acyrthosiphon pisum (Harris)], spotted alfalfa thrips [Thrips maculata (Buckton)], and Fusarium wilt [caused by Fusarium oxysporum Schlecht. f. sp. medicaginis (Weimer) Snyder & Satt;] is moderately resistant to Phytophthora root rot [caused by Phytophthora megasperma Drechs. f. sp. medicaginis (Kuan & Erwin)]; and is susceptible to anthracnose (caused by Colletotrichum trifolii Bain).

Five grams of P-3 seed will be provided to each applicant upon written request, and agreement to make appropriate