Registration of 'Niobrara' Wheat

'Niobrara' (Reg. no. CV-822, PI 584996) is a hard red winter wheat (Triticum aestivum L.) cultivar developed cooperatively by the Nebraska Agricultural Experiment Station and the USDA-ARS. It was jointly released to seed producers in 1994 by the developing institutions and the South Dakota Agricultural Experiment Station.

Niobrara was selected from the cross 'TAM 105'/'4'Amigo'//'Brule', which was made in 1983 by J.W. Schmidt. Niobrara is an F3-derived line that was selected in the F4. Niobrara was released primarily for its high yield potential and for resistance to diseases and insects in its area of adaptation.

Niobrara is an awned, white-glumed cultivar. The foliage is gray-green to green, with a waxy bloom at anthesis. The spike is middense and tapering. The glume is midlong and narrow to midwide. The glume shoulder is narrow and rounded to square. The beak is short. Kernels are red, hard, and ovate to elliptical. The kernel has no collar, rounded cheeks, midsize germ, large brush of short length, and a narrow and shallow crease.

Niobrara was tested as NE89522 in Nebraska yield trials starting in 1990, and the Northern Regional Performance Nursery in 1992. It had the highest grain yield in the Nebraska Fall Sown Small Grains Variety Trials in each year that it was tested (1993 and 1994; 26 environments). The average grain yield was 3890 kg ha⁻¹ for Niobrara, which was superior to 'Alliance' (3830 kg ha⁻¹), 'Vista' (3700 kg ha⁻¹), 'Redland' (3690 kg ha⁻¹), and 'Siouxland' (3450 kg ha⁻¹). Niobrara also had the highest average yield of the 15 lines tested in both 1992 and 1993 in the Northern Regional Performance Nursery (28 environments). In the 4 yr (1991–1994) that it was tested in the Nebraska Intrasestate Nursery (20 environments), Niobrara yielded 3180 kg ha⁻¹; only Alliance, at 3260 kg ha⁻¹, had a superior yield record. For comparison, the grain yields of Redland, Vista, 'Arapahoe', and 'TAM 107' were 3070, 3040, 3000, and 2840 kg ha⁻¹, respectively. The recommended growing region for Niobrara is southwest and northern Nebraska, and the Nebraska panhandle where its winterhardiness, plant height, tolerance for cooler weather, and disease resistance are most effective.

Niobrara is a semidwarf cultivar that is 11 cm taller than Vista (74 cm), 5 cm taller than Alliance (80 cm), and similar in height to Redland (84 cm). The straw strength of Niobrara is superior to Arapahoe, but less than Redland, Siouxland, 'TAM 107', 'Abilene', and 'Thunderbird'. Niobrara has an intermediate coleoptile length, similar to TAM 107 and 30% shorter than that of 'Scout 66'. The winterhardiness of Niobrara is adequate for Nebraska growing conditions, superior to 'Vona', 'TAM 200', and 'RAWHIDE', and similar to Scout 66. Niobrara is a medium maturity wheat (2 d later than Alliance and 2 d earlier than Redland).

Niobrara is heterogeneous for secalins encoded by the Sec-I locus, which is indicative of the Amigo translocation (1A/1R). Niobrara has Sr6 and is heterogeneous for the Amigo gene. It exhibited moderate resistance to stem rust (caused by Puccinia graminis Pers.:Pers.). Niobrara is moderately susceptible to leaf rust (caused by Puccinia recondita Robege ex Desmaz.) and is susceptible to the Great Plains biotype of Hessian fly (Macetia destructor (Say)) and soilborne wheat mosaic virus. Its reaction to wheat streak mosaic virus needs further testing; however, under mechanical inoculation in greenhouse evaluations, it appears to be slightly less tolerant than Redland, but superior to many Nebraska released cultivars. The Amigo translocation may also confer nonpreference to the virus vector, the wheat curl mite (Eriophyes tulipae Keifer; syn. Aceria tulipae) (1).

The grain volume weight of Niobrara is similar to Alliance and superior to Redland, but lower than Arapahoe, Siouxland, and 'Nekota'. The milling and baking properties of Niobrara were determined using 5 yr of testing by the Nebraska Wheat Quality Laboratory, with Arapahoe and Scout 66 as check cultivars. The average wheat and flour protein content of Niobrara is lower than Arapahoe and similar to Scout 66. The flour yield is less than Scout 66, but higher than Arapahoe. The dough mixing properties were similar to Arapahoe and stronger than Scout 66. While the baking absorption of Niobrara was less than Arapahoe and Scout 66, average loaf volumes were greater than the two check cultivars. The external appearance and internal attributes of the baked bread loaf indicated generally acceptable quality characteristics.

Breeders seed of Niobrara will be maintained by the Nebraska Agricultural Experiment Station. Niobrara will be submitted for U.S. plant variety protection under Public Law 91-577 with the certification option.


References and Notes

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Registration of 'Nekota' Wheat

'Nekota' (Reg. no. CV-826, PI 584997) is a hard red winter wheat (Triticum aestivum L.) cultivar developed cooperatively by the South Dakota Agricultural Experiment Station, Nebraska Agricultural Experiment Station and the USDA-ARS. It was jointly released to seed producers in 1994 by the developing institutions. The name was chosen in recognition of the cooperation between winter wheat improvement efforts in Nebraska and South Dakota in releasing this cultivar.

Nekota was selected from the cross 'Bennett'/'TAM 107' made in 1982 by J.W. Schmidt. Nekota is an F3-derived line that was selected in the F4. Nekota was released primarily for its high yield and grain volume weight and for resistance or tolerance to diseases in its area of adaptation.

Nekota is an awned, white-glumed cultivar. The foliage is gray-green to blue-green, with a waxy bloom at anthesis. The spike is middense and tapering. The glume is midlong to long and midwide. The glume shoulder is midwide and square to rounded. The beak is medium. Kernels are red, hard, and ovate. The kernel has no collar, rounded cheeks, midsize to large germ, large brush of medium length, and a narrow and shallow crease.

Nekota was tested as NE88427 in Nebraska grain yield trials starting in 1989, and the Southern Regional Performance Nursery in 1991 and 1992. In 3 yr of testing in the Nebraska Fall Sown Small Grains Variety Trials (1992 to 1994; 37 environments), Nekota (at 3610 kg ha⁻¹) was lower yielding than 'Alliance' (3680 kg ha⁻¹), but superior to 'Redland' (3510 kg ha⁻¹), 'Rawhide'