Registration of 'Vista' Wheat

‘Vista’ (Reg. no. CV-789, PI 562653) 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 1992 by the developing institutions. Vista was selected from the cross NE68513/NE68457/Centurk/73/“Yuta”. This was made in 1981 by J.W. Schmidt. NE68513 is “Warrior”/Atlas 66/Comanche/3/Comanche/Ottawa. NE68457 is ‘Ponca’/‘2’/‘Cheyenne’/Illinois#11/‘Chinese Spring’/‘2’/‘Triticum timopheevi414/‘Cheyenne’/‘Tenna’/‘Mediterranean’/‘Hope’/3/Sando 60. Vista is an increase of an F3-derived F1 line that was identified in 1987 and tested as NE87615. Vista was released because of its high yield potential, and disease and insect resistance.

Vista is an awned, white glumed cultivar. The awns are usually white, but in some environments may have a bronze cast. The spike is middense and generally fusiform but may be tapering to clavate. The foliage is green with a waxy bloom at anthesis. The glume is midlong and midwide to wide. The glume shoulder is midwide and sloping to square. The beak is acuminate and medium to moderately long. The kernel is short, red colored, hard textured, and elliptical to ovate. The kernel has no collar, rounded cheeks, midsize germ, large brush, and a narrow, shallow crease.

Vista has been tested in Nebraska yield nurseries starting in 1988, and in the Uniform Southern Regional Winter Wheat Performance Nursery in 1990 and 1991. In four years of testing (17 location-years) in the Nebraska Intrastate Nursery, Vista’s grain yield (2570 kg ha⁻¹) was similar to ‘Rawhide’, 11% more than ‘TAM107’, and 2, 3, and 4% less than ‘Arapahoe’, ‘Redland’, and ‘Siouxland’, respectively. In 2 yr of testing (1991 and 1992) in the Nebraska Fall-Sown Small Grain Variety Tests (28 location-years), Vista (3050 kg ha⁻¹) was 4, 5, 11, 13, and 14% higher yielding than Redland, Arapahoe, Siouxland, Rawhide, and TAM107, respectively. In the Uniform Southern Regional Winter Wheat Performance Nursery, Vista (3680 kg ha⁻¹) was the highest yielding line of those tested in both years across the region (48 location-years) and yielded 2% more than TAM107. Vista is best adapted to the northern high plains region (southwest Nebraska, western Kansas, and northeastern Colorado). In this region (10 location-years), Vista (3420 kg ha⁻¹) yielded 6% more than TAM 107. Vista is a semidwarf cultivar that is one cm shorter than TAM107 and 15 cm shorter than ‘Scout 66’, a conventional height wheat. Vista has a short coleoptile (63 mm) compared to TAM107 (80 mm) and Scout 66 (103 mm). Vista is not recommended for very dry wheat growing conditions (less than 38 cm of annual precipitation) because its short coleoptile and short plant height may cause seedling emergence and harvest difficulties. Vista (3390 kg ha⁻¹) may also be adapted to late planted, irrigated fields (2 location-years) in western Nebraska where it is 3% higher yielding than Arapahoe and 21% higher yielding than TAM107. Under irrigated conditions, the shorter stature of Vista is beneficial because it has a better height for harvest than taller wheats.

The grain volume of Vista is similar to Arapahoe, less than Siouxland and Rawhide, and superior to Redland. The winterhardiness of Vista is adequate for Nebraska growing conditions, superior to ‘Vona’, ‘TAM200’, and Rawhide, and similar to slightly less than Scout 66. Vista is a ‘Bracken’-derived late cultivar similar in anthesis date to Arapahoe and Redland, 1 d later than Siouxland, 2 d later than Rawhide, and 5 d later than TAM107. The straw strength of Vista is less than Redland, Siouxland, ‘Abilene’, and ‘Thunderbird’, and most similar to TAM200 which under Nebraska conditions may lodge early (shortly after anthesis) if there is lush spring growth.

Vista carriers Lr3 and Lr16, and is moderately resistant to the currently prevalent races of leaf rust (incited by Puccinia recondita Roberge ex Desmaz.). Vista is resistant to the Great Plains Biotype and Biotype C, and expresses a heterogeneous reaction to Biotype B of Hessian fly (Mayetiola destructor Say) which indicates it contains H3 derived from IL#1 or Ottawa. Some individual plants contain another gene (possibly H6). It is moderately resistant to stem rust (incited by P. graminis Pers.:Pers.), containing genes Sr6, Sr17, and Sr36. Vista is susceptible to soliborne mosaic virus. Based on greenhouse testing, Vista appeared to be more tolerant than Brule or Redland to wheat streak mosaic virus.

Based on composite samples from Nebraska, the wheat and flour protein content of Vista is similar to Scout 66 and less than Arapahoe. Vista has strong mixing characteristics as determined by the mixograph. With the exception of a low water absorption, the other milling and baking characteristics of Vista are acceptable, equal to or better than Scout 66 and Arapahoe, and superior to TAM200 and TAM107. The kernels of Vista have been classified by the Federal Grain Inspection Service as being hard red winter wheat.

Breeder seed of Vista will be maintained by the Nebraska Agricultural Experiment Station. Vista 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, D. R. Shelton, D. D. Baltensperger, and L. A. Nelson, Dep. of Agronomy; C. J. Peterson, USDA-ARS and Dep. of Agronomy, Univ. of Nebraska, Lincoln, NE 68588; D. V. McVey, USDA-ARS and 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. Vista was developed with partial financial support from the Nebraska Wheat Development, Utilization, and Marketing Board. Cooperative investigations of the Nebraska Agricultural Res. Div., Univ. of Nebraska, and USDA-ARS. Contribution no. 10227 from the Nebraska Agric. Res. Div. Registration by CSSA. Accepted 31 March 1993.*Corresponding author.

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Registration of ‘Rollo’ Barley

‘Rollo’ spring barley (Hordeum vulgare L.) (Reg. no. CV-240, PI 556999) was developed at the Utah Agricultural Experiment Station and released in March 1991. It was selected at Logan, UT, in 1984 as an F3-derived line from a single F2 head selected in 1983, from the cross ‘Bracken’/UT75B65–532 (ID633019/‘Woodvale’) made in 1979. ID633019 is a six-row breeding line from the cross C19169/CI10119/‘Troll’. Segregating generations (F2→F6) were grown in space-planted modified bulk populations and desirable plants were selected each year from 1980 through 1983. Rollo was yield-tested in Utah as UT84B417–1075 beginning in 1985 and in the Western Regional Spring Barley Nursery (1988 and 1989) as UT 1075. Breeder seed was produced in a 1988–1989 winter increase at Yuma, AZ, from 200 head rows. Off-type rows were