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Registration of N86L177 Wheat Germplasm

N86L177 (Reg. no. GP-344, PI 559717) is a hard red winter wheat (*Triticum aestivum* L.) germplasm line developed cooperatively by the USDA-ARS and the Nebraska Agricultural Experiment Station and released in January 1992. N86L177 was derived from the cross 'Nap Hal'/'Lancer'//'Karlik 1'/3/'NS 622'/4/'Centurk'/'GK–Tiszataj'/2/'Plainsman V', made in 1980. It is an increase from an F_4–derived F_5 headrow and was identified as a line in 1986 at Lincoln, NE.

N86L177 was selected and released as germplasm based on its superior grain protein concentration and excellent bread-making qualities. Grain protein concentrations of N86L177 average 5 g kg^{-1} higher than 'Karl', 16 g kg^{-1} higher than 'Siouxland', and 24 g kg^{-1} higher than 'Redland'. N86L177 has very long dough-mixing requirements, ≈0.5 min longer than Karl, accompanied by high levels of mixing tolerance. In bread-making evaluations, N86L177 has shown superior loaf volume potential, combined with excellent external and internal loaf grain and texture properties, when compared with Karl and commonly grown Nebraska cultivars. N86L177 possesses high molecular weight glutenin subunits 1, 7 + 9, and 5 + 10 (1). It was evaluated by the Wheat Quality Council in small-scale mill and bake trials in 1991. Flour extraction of N86L177 is average for common Nebraska cultivars, with average to below average flour ash content.

N86L177 is an awned, white-glumed, short wheat. It is equal in height to Karl, with similar to slightly earlier maturity. Its winterhardiness is better than 'TAM 200' and slightly less than Karl. N86L177 has moderately erect leaves and very stiff straw, and is lower tillering than commonly grown Nebraska cultivars.

N86L177 possesses *Sr5*, which is no longer effective, plus an additional gene or genes that confer adult plant resistance to current field races of stem rust (incited by *Puccinia graminis* Pers.:Pers.). It is moderately susceptible to current field races of leaf rust (incited by *Puccinia recondita* Roberge ex Desmaz). It has shown a moderately susceptible reaction to soil-borne wheat mosaic virus and is susceptible to the Great Plains biotype of Hessian fly (*Mayetiola destructor* Say).

N86L177 was evaluated at 15 locations in the Nebraska Wheat Variety Tests in 1990 and in 29 location–years of Nebraska trials from 1987 to 1991. Grain yield of N86L177 averaged 87% of the Nebraska varieties Redland and Siouxland, and 85% of Karl. Its grain yield is superior to Redland and Siouxland under conditions favoring high levels of lodging. Its test weight is higher than Redland or Siouxland, but less than that of Karl. N86L177 was entered in the 23rd International Winter Wheat Performance Nursery for evaluation in 1991.

Seed of N86L177 has been deposited in the National Small Grains Collection and small samples can be obtained upon written request to the corresponding author. It is requested that appropriate recognition of source be given when this germplasm contributes to research or development of new cultivars.

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References and Notes

1. Payne, P.I., and G.J. Lawrence. 1983. Catalogue of alleles for the complex loci, *Glu-A1, Glu-B1* and *Glu-D1* which code for high-molecular-weight subunits of glutenin in hexaploid wheat. Cereal Res. Commun. 11:29.
2. C.J. Peterson and R.A. Graybosch, USDA-ARS and Dep. of Agronomy and P.S. Baenziger, D.R. Shelton, and L.A. Nelson, Dep. of Agronomy, Univ. of Nebraska, Lincoln, NE 68583; W.D. Worrall, Texas A&M Univ. Agric. Exp. Stn., Vernon, TX 76384; 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. Contribution no. 9885 from the Nebraska Agric. Res. Div. Registration by CSSA. Accepted 30 Sept. 1992. *Corresponding author.

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