Registration of 'Grant' Wheat

'Grant' soft red winter wheat (Triticum aestivum L.) (Reg. no. CV-801, PI 5752548), was developed by the Purdue University Agriculture Research Programs in cooperation with the USDA-ARS. Grant was tested as P811670A9-10-6-7-63 and was released in 1993. Grant, or its closely related and indistinguishable parent line, P811670A9-10-6-7-63, has been tested in replicated performance trials at Lafayette, IN, since 1987; at Sullivan, IN, since 1991; in Indiana small grains performance trials since 1991; in the four-state (Illinois, Indiana, Missouri, Ohio) Regional Nursery in 1989 and 1991; and in the Uniform Eastern Soft Red Winter Wheat Nursery in 1992. It has been tested in disease nurseries at Lafayette since 1985, and its soft wheat milling and baking characteristics have been evaluated since 1988 at the USDA-ARS Soft Wheat Quality Laboratory, Wooster, OH.

Grant was selected from the progeny of the cross 'Caldwell'/ 'Beau'/'Kavkaz'. Caldwell and Beau are soft red winter wheat cultivars adapted to Indiana. Kavkaz is a Russian winter wheat cultivar having a 1B-IR translocation with Lr26 resistance to leaf rust (caused by Puccinia recondita Roberge ex Desmaz.) and resistance from rye to powdery mildew (caused by Erysiphe graminis DC. f. sp. tritici Em. Marchal). The cross was made and subsequent selection was carried out to transfer resistance to leaf rust and powdery mildew from Kavkaz, and large kernel size from Beau and Kavkaz to Caldwell. Caldwell contributed excellent soft wheat milling and baking qualities and early maturity. Grant was developed by a modified pedigree method of breeding with plant selections made in the F3, F4, and F5 generations. Grant has been uniform and true breeding during development of breeder seed. Most of the approximately 2% of variant spikes are characteristic of the cultivar type, but are 10 cm taller than other spikes. Breeder seed, produced in 1993, was the F5 generation.

Grant is similar to Caldwell for general plant type characteristics; however, averaged over 8 yr (1987–1994) at Lafayette, IN, Grant produced 5185 kg ha⁻¹, compared with 4896 kg ha⁻¹ for Caldwell. Grant heads 1 to 2 d later, is 5 cm shorter, has stronger straw, and has a higher percentage winter survival in Indiana than Caldwell. Grant has Sr31, Lr26, and Pm6 from Kavkaz, and it has resistance to wheat scourge mosaic, wheat spindle streak mosaic, wheat spike streak mosaic, and take-all (caused by Gaeumannomyces graminis (Sacc.) Ark & D. Olivier var. tritici J. Walker). Septoria leaf blotch (caused by Septoria tritici Roberge in Desmaz.) and glume blotch (caused by Stagonospora nodorum (Berk.) Castellani & E.G. Germano) develop less on Grant than on Caldwell. It has HS for resistance to Hessian fly (Mayetiola destructor (Say)). Soft wheat milling and baking scores for Grant are similar to those of Caldwell.

Plant color of Grant at booting is green and anthers are yellow. The stem does not have anthocyanin and has a watery bloom. Stem internodes are hollow and hairs of the last internode are absent. Auricles do not have anthocyanin and hairs are absent. The flag leaf is erect, not twisted, has a watery bloom, and hairs are absent. Spikes are lax, tapering, apically awnless, and yellow at maturity. Glumes at maturity are of medium length and width, shoulders are square, and beaks are obtuse. Seeds are ovate, cheeks are rounded; the brush length is medium, and not collared; phenol reaction is brown. The coleoptile is white and seedling anthocyanin is absent. Juvenile plant growth is semierect.

The generation sequence of seed production is breeder, foundation, and certified. Cultivar protection under the U.S. Plant Variety Protection Act, Public Law 91-577, and Title V of the Federal Seed Act is pending. Breeder seed is maintained by the Purdue University Agriculture Research Programs, West Lafayette, IN 47907.


References and Notes


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Registration of 'Affinity' Perennial Ryegrass

'Affinity' perennial ryegrass (Lolium perenne L.) (Reg. no. CV-176, PI 577796) was developed by the Genesis Group, Huntsville, UT, using germplasm obtained from the New Jersey Agricultural Experiment Station. Affinity was released in January 1993. The experimental designation of Affinity was GEN-90.

Affinity is an advanced-generation synthetic cultivar selected from the maternal half-sib progenies of 28 clones, each of which contains an Acremonium lolii Latch, Christensen & Samuels endophyte. Half-sib progenies of five additional clones served as additional pollen parents. More than 95% of the parental germplasm of Affinity traces to plants selected from old turfs located in Maryland, Pennsylvania, New Jersey, and New York City between 1962 and 1977. The remaining germplasm traces to plants selected from old turfs in Missouri and Washington, DC, from the cultivar Loretta, and from plant introductions from Greece (PI 231597) and Finland (PI 197270).

The parental clones of Affinity were selected from 14 separate, but related, germplasm populations developed through a population improvement program initiated in 1968 to develop turf-type perennial ryegrass varieties with greater disease resistance, better stress tolerance, improved mowing quality, attractive appearance, finer leaves, greater density, and lower growth profile. Breeding procedures included many cycles of both phenotypic and genotypic recurrent selection and a modified backcrossing program. Many separate breeding populations were developed and subsequently intercrossed at various intervals to maintain needed genetic diversity under conditions of intense selection.

During the late summer of 1989, >20,000 tillers were selected from the best 33 of 700 closely mowed turf plots and screened for improved resistance to crown rust (caused by Puccinia coronata Corda var. lolii Brown). The most promising 5496 plants were subsequently transferred to an isolated spaced-plant nursery at Adelphia, NJ, in the fall of 1989. Selection within this nursery was directed to attractive, leafy, disease-free, lower-growing plants with rich, dark-green color and high seed yield potential. A total of 3281 plants not meeting these objectives were removed prior to anthesis in May 1990. Seed was subsequently harvested from 889 endophyte-infected plants showing the best floret fertility. This seed was used to establish a foundation seed increase field near Othello, WA, in 1990. The first certified seed was harvested in 1992.

Affinity is a leafy, medium-low-growing, turf-type perennial