Registration of ‘Roane’ Wheat

‘Roane’ (Reg. no. CV-899, PI 612958) is a full-season, high yielding, apically awnledted soft red winter wheat (Triticum aestivum L.) with exceptionally high test weight and resistance to a broad spectrum of plant pathogens and insect pests. The Virginia Agricultural Experiment Station released Roane in the fall of 1999. Roane wheat was named in honor of Curtis W. Roane, Professor Emeritus, Virginia Polytechnic Institute and State University, for his contributions toward the development of disease and insect resistant small grain cultivars.

Roane was derived from the three-way cross of VA 71-54-147/’Coker 68-15’/IN65309C1-18-2-3-2. The first two parents, VA 71-54-147 (Citr 17449) and Coker 68-15 (Citr 15291), are also the parents of the cultivar Saluda (Starling et al., 1986). The third parent, IN65309C1-18-2-3-2, was developed by Purdue University and obtained from the 1983 USDA-ARS Uniform Eastern Soft Red Winter Wheat Nursery (UESRWWN). The final cross was made in 1984, and the population advanced, using a modified bulk breeding method. Roane was derived as an F₃₅ head row and tested under the designation VA 93-54-429.

Coleoptiles of Roane are predominantly red. Juvenile plants exhibit a prostrate growth habit. Plant color at booting is blue green, and a waxy bloom is present on the stem and flag leaf sheath. Anthber color is yellow. Spikes are tapering, lax, and apically-awnated. Glumes are medium in length and width, and have oblique shoulders with acute beaks. Kernels of Roane are red, soft, and ovate with a narrow and middeep destructoor that of ‘FFR 555W’. Plant height of Roane (88 cm) is 2.5 cm In yield trials conducted across 26 environments in Virginia increase, rounded cheeks, and a midlong brush. The phenol biotypes D and L. However, Roane has expressed a significant width, and have oblique shoulders with acute beaks. Kernels IN, indicate that Roane is resistant to Hessian fly [Puccinia graminis f. sp. tritici Em. Marchal; syn. Blumeria graminis (DC.) E.O. Speer]. The identity of the resistance genes in Roane is not known, but it likely inherited the gene Pm4a from IN65309C1-18-2-3-2, and also may possess Pm3a from VA 71-54-147. Roane was resistant to 34 of 38 isolates of E. graminis in seedling tests of entries in the 1996 UESRWWN, conducted by USDA-ARS at Raleigh, NC. Tests conducted by the USDA-ARS Cereal Disease Laboratory in St. Paul, MN, indicate that Roane possesses Gene Lr11, but is susceptible in the seedling stage to the most prevalent races of leaf rust (caused by Puccinia triticicra Eriks.). However, in field tests Roane had an average leaf rust severity (0–9 score) of 3.0, compared with scores of 4.6 for Pocahontas (Lr11) and 5.4 for FFR555W (Lr10), indicating that Roane possesses some adult-plant resistance. Roane lacks any of the known genes for resistance to stem rust (caused by P. graminis Pers.:Pers. f. sp. tritici Eriks. & E. Henn.). Roane is moderately susceptible to soil-borne mosaic and wheat spindle streak mosaic viruses, based on field tests. It expresses moderate resistance to leaf blotch (caused by Septoria tritici Roberge in Desmaz.) and glume blotch [caused by Stagonospora nodorum (Berk.) Castellani & E.G. Germano]. Data on Fusarium head blight from the 1996 and 1997 UESRWWN and data from scab research tests conducted in Virginia during the past 4 yr indicate that Roane possesses Type IV (reduction in kernel infection) and Type V (reduction in yield loss) resistance to scab. Seedling tests conducted by USDA-ARS at West Lafayette, IN, indicate that Roane is resistant to Hessian fly [Mayetiola destructor (Say)] biotypes GP, B, and E, and susceptible to biotypes D and L. However, Roane has expressed a significant level of resistance to Hessian fly even in areas where biotype L is predominant.

In yield trials conducted across 26 environments in Virginia from 1994 to 1997, Roane had an average grain yield of 5510 kg m⁻¹, which was not significantly different from the highest yielding commercial cultivar, 2580 (5710 kg m⁻¹). In these tests, Roane had the highest average test weight (770 kg m⁻³). Roane was evaluated in the UESRWWN at 27 locations in 1996, and at 29 locations in 1997. For grain yield, Roane ranked 8th (4045 kg ha⁻¹) compared with ‘Cardinal’ (4025 kg ha⁻¹) which ranked 11th among 30 entries over all locations in 1996 tests. Roane was one of two entries having the highest average test weight (750 kg m⁻³) in the 1996 nursery. In 1997, Roane ranked 14th (5090 kg ha⁻¹) in grain yield, while Cardinal (4810 kg ha⁻¹) ranked 10th among 33 entries. Once again, Roane had one of the highest test weight averages (760 kg m⁻³). Roane is widely adapted, based on a 2 yr performance in the UESRWWN.

Authorized seed classes of Roane are Breeder, Foundation, and Certified. Roane is protected under the amended U.S. Plant Variety Protection Act of 1994 (Application pending, PVP Certificate no. 20000148). The Department of Crop and Soil Environmental Sciences and the Virginia Agricultural Experiment Station, Blacksburg, VA, will maintain Breeder seed. Foundation seed of Roane will be produced and maintained by the Virginia Crop Improvement Association via the Foundation Seed Farm, Box 78, Mount Holly, VA 22524.


References