Registration of ‘Roane’ Wheat

‘Roane’ (Reg. no. CV-899, PI 612958) is a full-season, high yielding, apically awnleted 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 (Cltr 17449) and Coker 68-15 (Cltr 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 F_{7.8} 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 leaf sheath. Ather color is yellow. Spikes are tapering, lax, and apically-awnleted. 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 crease, rounded cheeks, and a midlong brush. The phenol reaction is brown.

Head emergence (Day of Year 125) of Roane is similar to that of ‘FFR 555W’. Plant height of Roane (88 cm) is 2.5 cm taller than ‘Coker 9803’ and 5.0 cm shorter than ‘Jackson’. On the basis of Belgian lodging score (0.2–10), Roane has good straw strength with a 5 yr average score of 1.8, vs. 3.7 for Jackson. On the basis of average winter hardiness ratings (0–9 scale) from the 1996 and 1997 USDA-ARS Uniform Eastern Soft Red Winter Wheat Nurseries, Roane (5.3) is moderately hardy, based on comparisons with Pioneer Brand ‘2548’ (6.0), ‘Cardinal’ (6.1) and ‘Caldwell’ (6.2). Across 4 yr (1994–1997), the average grain volume weight of Roane was 770 kg m^{-3}, which was 50 kg m^{-3} higher than the average of all genotypes evaluated in the Virginia Official Variety Test. In each of the past 4 yr, the average test weight of Roane has been 760 kg m^{-3} or higher in statewide tests. On the basis of quality evaluations conducted from 1994 to 1999 by the USDA-ARS Soft Wheat Quality Laboratory in Wooster, OH, milling and baking qualities of Roane are similar to those of ‘2580’.

With eight independent Allis-Chalmers millings, Roane had average values of 746 g kg^{-1} for straight-grade flour yield, 12.5% for endosperm separation index, 59.3% for alkaline water retention capacity, 30.4% for break-flour recovery, and a protein content of 11.4%.

Roane was resistant to 34 of 38 isolates of Erysiphe graminis DC., the level of resistance to Hessian fly even in areas where biotype is predominant. Roane is resistant to FFR555W (Lr10), indicating that Roane possesses some level of resistance to stem rust (caused by P. graminis E. graminis). Roane was resistant to several pathogen and insect pests. Roane possesses Type IV (reproduction in kernel infection) resistance to Hessian fly [caused by Mayetiola destructor (Say)].

In yield trials conducted across 26 environments in Virginia during the past 4 yr, Roane had an average leaf rust severity (0–9) of 1.3 (similar to ‘Coker 9803’) compared with average scores greater than 3.8 for susceptible cultivars such as Pocahontas and Castellani & E.G. Germano. Data on Fusarium head blight resistance to Fusarium head blight (caused by Fusarium graminearum) indicate that Roane possesses Type IV resistance.

The identity of the resistance genes in Roane is not known, but it likely inherited the gene Pm1 from VA 71-54-147, and also may possess Pm3a from VA 71-54-147. In seedling tests of entries in the 1996 UESRWWN, Roane was resistant to 34 of 38 isolates of E. graminis DC., f. sp. tritici Ém. Marchal; syn. Blumeria graminis (DC.) E.O. The identity of the resistance genes in Roane is not known, but it likely inherited the gene Pm4a from VA 71-54-147, and also may possess Pm3a from VA 71-54-147.

In all genotypes evaluated in the Virginia Official Variety Test, Roane ranked 11th among 30 entries over all locations in 1996, and at 29 locations in 1997. For grain yield, Roane ranked 10th among 33 entries. Once again, Roane had one of the highest test weight averages (760 kg m^{-3}) in grain yield, while ‘Cardinal’ (4810 kg ha^{-1}) ranked 2nd (5090 kg ha^{-1}) in grain yield, while ‘Cardinal’ (4810 kg ha^{-1}) ranked 2nd among 30 entries over all locations in 1996.

In each of the past 4 yr, the average test weight of Roane has been 760 kg m^{-3} or higher in statewide tests. RoaneOne of two entries having the highest average test weight (770 kg m^{-3}) from 1994 to 1997, Roane had an average grain volume weight of Roane was one of two entries having the highest average test weight (770 kg m^{-3}) from 1994 to 1997, Roane had an average leaf rust severity (0–9) of 1.3 (similar to ‘Coker 9803’) compared with average scores greater than 3.8 for susceptible cultivars such as Pocahontas and Castellani & E.G. Germano. Data on Fusarium head blight resistance to Fusarium head blight (caused by Fusarium graminearum) indicate that Roane possesses Type IV resistance.

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