REGISTRATIONS OF CULTIVARS

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 F₇× 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. Anther 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, 1.3% for protein content, 0.5% for hardness, and 20.0% for moisture content.

Roane was resistant to 34 of 38 isolates of Erysiphe graminis f. sp. tritici Ém. Marchal; syn. Blumeria graminis (DC.) E.O. Registration of ‘Roane’ Wheat. Crop Sci. 26:200. Roane was resistant to the prevalent field populations of Puccinia triticina (Sav.) Roberge in Desmaz.) biotypes GP, B, and E, and susceptible to P. graminis L.) with exceptionally high test weight and resistance to soil-borne mosaic and wheat spindle streak mosaic viruses, based on field tests. It expresses moderate resistance to adult-plant resistance. Roane lacks any of the known genes for resistance to stem rust (caused by P. graminis f. sp. tritici Eriks. & E. Henn.). Roane is moderately resistant to leaf blight (caused by Septoria tritici Rob. & P. Henn.) and glume blotch (caused by Stagonospora nodorum Berk.) biotypes G and L. However, Roane has expressed resistance to several pathogen and insect pests. Roane is resistant to the prevalent field population of Hessian fly (Mayetiola destructor Say) biotypes GP, B, and E, and susceptible to P. graminis Lr 11, indicating that Roane possesses some level of resistance to Hessian fly even in areas where biotype Lr 11 is predominant.

In yield trials conducted across 26 environments from 1994 to 1997, Roane had an average grain yield of 5510 kg ha⁻¹, which was not significantly different from the average of the high yielding commercial cultivar, 2580 (5710 kg ha⁻¹). Roane had the highest average test weight of 770 kg m⁻³, which was 50 kg m⁻³ higher than the average of all genotypes evaluated in the Virginia Official Variety Test. Roane was evaluated in the UESRWWN at 27 locations in 1996, and at 29 locations in 1997. For grain yield, Roane (4810 kg ha⁻¹) ranked 2nd (4025 kg ha⁻¹) in grain yield, while Pioneer Brand ‘Cardinal’ (4025 kg ha⁻¹) ranked 11th among 30 entries over all locations in 1996. Across 4 yr (1994–1997), the average test weight of Roane was 760 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, 1.3% for protein content, 0.5% for hardness, and 20.0% for moisture content.

Authorized seed classes of Roane are Breeder, Foundation, Foundation-manufactured, Breeder-manufactured, and Certified. Roane is protected under the Agriculture Plant Variety Protection Act of 1994 (Applicant’s PVP Certificate no. 200000148). The Department of Agriculture, Soil Environmental Sciences and the Virginia Experiment Station, Blacksburg, VA, will maintain the seed of Roane on file.

References
