Registration of ‘Roane’ Wheat

‘Roane’ (Reg. no. CV-899, PI 612958) is a full-season, high yielding, apically awnless 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 (CIttr 17449) and Coker 68-15 (CIttr 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 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 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 width, and have oblique shoulders with acute beaks. Roane is resistant to Hessian fly (caused by Mayetiola destructor (Say)] biotypes GP, B, and E, and susceptible to leaf blotch (caused by Septoria 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) and glume blotch (caused by Stagonospora nodorum Berk.) biotypes G, P, and E. Roane also possesses Pm3a from the cultivar Saluda (Starling et al., 1986). Adult-plant resistance. Roane lacks any of the known genes also the parents of the cultivar Saluda (Starling et al., 1986). Roane was resistant to the prevalent field population (caused by Puccinia triticina Eriks. & E. Henn.). Roane is moderately susceptible to leaf blotch (caused by Septoria tritici Roberge) and glume blotch (caused by Stagonospora nodorum Berk.) biotypes G, P, and E. However, Roane has expressed a higher level of resistance to Hessian fly even in areas where L is predominant.

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 (0–10), 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 4yr (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, 19.8% for gluten content, and 37.8% for protein content. Roane was resistant to 34 of 38 isolates of Erysiphe graminis DC.

In yield trials conducted across 26 environments in Virginia from 1994 to 1997, Roane had an average grain yield of 4910 kg ha⁻¹, which was not significantly different from the highest yielding commercial cultivar, 2580 (5710 kg ha⁻¹). In grain yield tests, Roane had the highest average test weight of 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 2nd (4810 kg ha⁻¹) in the 1995 nursery, 6th (4045 kg ha⁻¹) in grain yield, while Cardinal (4025 kg ha⁻¹) ranked 1st among 30 entries over all locations in 1995.

Roane was one of two entries having the highest average test weight (750 kg m⁻³) in the 1996 nursery. In 1997, Roane ranked 11th among 30 entries over all locations in 1996.

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