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 (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 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$_{7}$ 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, and 37.1% for minimum break flour yield. Roane was resistant to the prevalent field populations of leaf rust (caused by Puccinia graminis f. sp. tritici Em. Marchal; syn. Blumeria graminis DC.) and root rot (caused by Pythium spp.). Roane expressed resistance to many resistant gene combinations in both seedling and adult-plant stages.

Lodging score for Roane is 0.2–10, indicating that Roane possesses some adult-plant resistance. Roane lacks any of the known genes for resistance to stem rust (caused by P. graminis f. sp. tritici Em. & E. Henn.). However, Roane is resistant to Hessian fly [Mayetiola destructor Say], barley yellow dwarf virus [caused by Rhymovirus], and the prevalent races of leaf rust (caused by Erysiphe graminis DC.) and stem rust (caused by P. graminis f. sp. tritici Em. Marchal; syn. Blumeria graminis DC.)

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