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/**IN65390C1-18-2-3-2. The first two parents, VA 71-54-147 (Clt 17449) and Coker 68-15 (Clt 15291), are also the parents of the cultivar Saluda (Starling et al., 1986). The third parent, IN65390C1-18-2-3-2, 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 dererity as F$_3$ 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 checks, 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$^{-3}$ more 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 16.9 cm for cookie spread diameter.

On the basis of natural field infections in Virginia’s Official Variety Trials conducted from 1995 to 1999, Roane has expressed resistance to several pathogen and insect pests. Roane is unique in that it has some resistance mechanism that reduces the incidence and/or development of barley yellow dwarf virus. For this disease, Roane had an average score of 1.3 out of 9.0 (1 indicates no disease), compared with average scores greater than 3.8 for susceptible cultivars such as Pocahontas and FFR555W. Roane is resistant to the prevalent field populations of powdery mildew [caused by Erysiphe graminis DC. 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 Pm4 from IN65390C1-18-2-3-2, 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 triticina 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 streakleak 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 Sphaeropspora nodorum (Berk.) Castellani & E.G. Germano]. Data on Fusarium head blight (caused by F. graminearum (Sacc.) Kurt. & S. Say) biotypes GP, B, and L. However, Roane has expressed resistance to several pathogen and insect pests. Roane

References