characteristics of both parental species and moderate to no rhizome development were retained for generation advance. More intense selection for agronomic performance and adaptation to semiarid range conditions was initiated in the F1 generation. The objectives were to combine the vigor, productivity, salinity tolerance, and persistence of quackgrass with the drought resistance, caespitose growth habit, seed quality, and forage quality of bluebunch wheatgrass.

NewHy is meiotically stable with a chromosome number of \(2n = 6x = 42\) and fully fertile. Dewey (3) concluded that the genome constitution of the parental species was \(S_S S_S S_S XX\) for quackgrass and \(S S S_S\) for bluebunch wheatgrass, and that genetic exchange in the RS hybrid had occurred between the \(S\) genomes of the two species.

Rate of phenological development is intermediate to the parental species and anthesis occurs from mid to late June in nurseries near Logan, UT. The hybrid produced 360 kg seed ha\(^{-1}\) on an irrigated site near Miles City, MT (P.O. Currie, 1989, unpublished data). Degree of rhizome development in the hybrid breeding population readily responds to selection pressure (4). Essentially caespitose types have been derived after two cycles of selection. Rhizome development of the NewHy cultivar, as measured by clone diameter, ranges from \(<0.1 \, \text{m}\) to \(=1.0 \, \text{m}\) \(\text{yr}^{-1}\) on range sites receiving from 330 to 380 mm annual precipitation. On these sites, >85% of the plants had a vegetative spread of \(<0.5 \, \text{m}\) during the season.

NewHy has demonstrated excellent resistance to excess soil salinity (5). In greenhouse trials (W.H. Horton, 1989, unpublished data), salinity resistance of NewHy approached that of tall wheatgrass \(\text{Thinopyrum ponticum}\) (Fod.) Barkworth & D.R. Dewey. Agronomic performance of the cultivar has been evaluated on several range sites in the Intermountain West and, to a lesser extent, in the Great Plains of the USA. It is most productive on slightly saline or alkaline range sites receiving at least 330 mm of precipitation annually or supplemental irrigation. Results from a trial on a range site in northwestern Utah, which receives an average of 366 mm annual precipitation, are typical. Poor seed germination resulted in stands of <50% during the establishment year. As stands improved through tillering and rhizome development during the third and fourth years, NewHy produced more forage than any of the other 16 entries included in the trial. It is noteworthy that NewHy, unlike its quackgrass parent, did not spread beyond its plot borders into adjacent plots. Similar trends were observed in a trial established in the foothills of the La Sal Mountains in southern Utah, at an altitude of 1 900 m and with an annual average of 330 mm precipitation.

Forage quality of NewHy, based on neutral detergent fiber (NDF) and percent crude protein, compared favorably with intermediate wheatgrass \(\text{Thinopyrum intermedium}\) (Host) Barkworth & D.R. Dewey) under semiarid conditions (W.H. Horton, 1990, unpublished data). Although NewHy begins growth early in the spring, it remains more succulent and palatable for livestock later in the growing season than most other wheatgrasses, especially on dryland range sites. In a trial in central Utah, cattle grazed NewHy in preference to all other entries in the trial, including intermediate wheatgrass and crested wheatgrass \(\text{Agropyron desertorum}\) (Fisch. ex Link) Schultes. The hybrid is resistant to moderate grazing pressure after establishment and it recovers rapidly after grazing or defoliation.

Although considerable variation exists among seedlots, seed quality tends to be somewhat lower than grasses such as crested wheatgrass and intermediate wheatgrass. Improved seed quality continues to be a breeding objective; however, until this deficiency is corrected, it is recommended that seeding rates from 9 to 12 kg ha\(^{-1}\) be used in the areas of adaptation. After emergence, seedlings are vigorous and establish themselves rapidly under relatively harsh conditions.

Breeder seed will be maintained by the USDA-ARS at Logan, UT. Foundation seed is being produced from breeder seed by the USDA-ARS at Logan and the USDA-SCS at Los Lunas, NM. Foundation seed will be distributed by the Utah Crop Improvement Association and the USDA-SCS. Because of the morphological similarity of NewHy seed to that of quackgrass, protection has been applied for under the Plant Variety Protection Act of 1970. Conditions of this license specify that NewHy seed can be marketed only as a class of certified seed.


References and Notes


REGISTRATION OF ‘VERNE’ WHEAT

‘Verne’ wheat (\(\text{Triticum aestivum}\) L.) (Reg. no. CV-764, PI 547901) was developed by the Kentucky Agricultural Experiment Station (KAES) and released in 1990. Verne, tested as KY83-38, was released for its superiority in grain yield and test weight under conventional management. The cultivar was named for the late V.C. Finkner, small-grains breeder at the University of Kentucky for many years. Verne was derived from the cross ‘Red Coat’/‘Gaines’/‘5/Taylor’/‘Norin 10’/‘Brever’/3/Unknown parent/4/Oasis’. An \(F_3\) bulk of this cross was obtained in 1981 from T.M. Starling, then small grains breeder at Virginia Polytechnic Institute and State University. Approximately 50 heads were harvested and planted as \(F_3\) headrows. A single \(F_3\)-derived progeny row was harvested in bulk and the population was headrowed and reselected through the \(F_4\) generation. Five \(F_5\) headrows were bulked on the basis of uniform plant type and increased in the \(F_4\) and \(F_5\) generations to produce \(F_6\) breeder seed.

Verne is a white-chaffed, awnleted soft red winter wheat with midlong spikes and large kernels. It is of midseason maturity, heading \(= 4 \, \text{d} \) later than ‘Coker 916’, and 2 d earlier than ‘Cardinal’. Verne is tall, equivalent in height to Cardinal, and will often lodge under high N rates (> 10 g m\(^{-1}\)). In several years of testing, lodging ratings of Verne and Saluda have been similar. Verne is slightly more winterhardy than Saluda.

Verne has been tested in the Kentucky state variety trial since 1987, and in the Uniform Eastern Soft Red Winter