

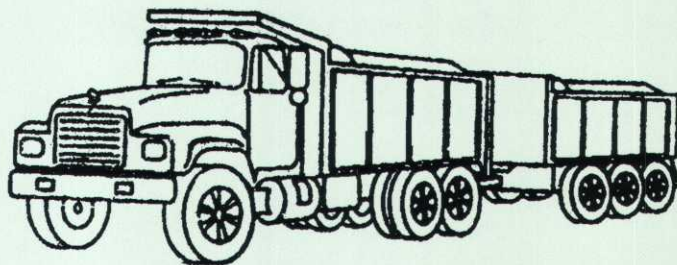
# Selection for Improved Winter Hardiness In Perennial Ryegrass

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Efforts are underway to increase the winter hardiness and herbicide tolerance of turf-type perennial ryegrass. Developing elite turf-type perennial ryegrass varieties would expand Minnesota's grass seed producer's options and extend the options for turf professionals to home owners. Elite perennial ryegrass varieties and experimental lines were crossed with NK200, an older variety with acceptable winter hardiness but poor turf quality. Progeny from the crosses were evaluated and plants which combined winter hardiness and turf quality were selected for further evaluation and breeding activities. Turf plots were established in 1999 of experimental populations selected for excellent turf quality and increased winter hardiness. Our evaluations indicate that winter hardiness was improved to levels higher than is currently available in ryegrass cultivars. To date, we have two populations of perennial ryegrass with superior winter hardiness that are currently being released by the University of Minnesota and seed should be commercially available to turf managers in 2004 or 2005.

Research is also focused on using traditional plant breeding methods to develop herbicide tolerant perennial ryegrass using a naturally occurring, herbicide tolerant gene. The first herbicide tolerant variety was released by the University of Minnesota in 2001 and is called P101. Commercial seed production was initiated northern Minnesota with seed potentially being available in Fall, 2003. P101 has a moderate level of winter hardiness and turf quality, but improved rust resistance. Current plant breeding efforts include continued improvements in turf quality and winter hardiness to produce a cultivar with superior turf performance and herbicide tolerance. Additional plant breeding activities in perennial ryegrass include the development of potential new cultivars with a spreading growth habit for improved wear tolerance and the incorporation of resistance to gray leaf spot, a devastating new disease of perennial ryegrass.

*(Editor's Note: N.J. Ehlke and D.L. Wyse are Professors and D.J. Vellekson and K.J. Betts are Assistant Scientists in the Department of Agro.)*



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