

Improved Winterhardiness In Turf-type Perennial Ryegrass?

By Blair L. Waldron and Nancy J. Ehlke¹
University of Minnesota

The market for turf-type perennial ryegrass (*Lolium perenne*) continues to grow with over \$70 million in seed sales in 1994. Breeders in private companies are capitalizing on this increasing ryegrass popularity by continuing to make improvements in turf quality traits such as color, density, texture, mowability and disease resistance. However, all current improved turf-type cultivars do not have adequate levels of winterhardiness for the northern USA and Canada. Thus, the use of perennial ryegrass has been confined primarily to areas with mild winters, or as temporary turf.

Grass seed production is an important component of the economy of rural northern Minnesota. However, lack of winterhardiness remains the major limitation to the production of perennial ryegrass seed. Increasing the winter survival of these improved types would positively impact Minnesota by expanding the grass seed producer's options, and extending the range of adaptation for perennial ryegrass turf.

Efforts are underway at the University of Minnesota to increase the winterhardiness of turf-type perennial ryegrass. Although many breeders have suggested a complete lack of variation for winterhardiness in the available turf-type germplasm, repeated tests have shown that only an older, unacceptable turf variety ('NK-200') possesses sufficient winterhardiness to consistently survive northern Minnesota winters. NK-200 is characterized as having poor turf quality including coarse leaf texture and crown rust susceptibility. The objectives of our research were: 1) develop a perennial ryegrass breeding population using NK-200 as the pollen parent and elite turf-type cultivars as the seed parent, 2) evaluate the winterhardiness and turf quality of these progeny under field conditions and 3) determine if adequate variation for improved turf quality exists within this population for cultivar development.

The results of the research have been more promising than we had ever hoped. The progeny from the NK-200 crosses were established in Rosemount and St. Paul, MN in 1993. During the summers of 1994 and 1995, the 8250 spaced-plants were evaluated for winterhardiness, leaf texture, turf-quality, and crown rust resistance. Results from this data revealed there were significant differences in winterhardiness between crosses. This was an important discovery because it refuted previous claims of no variation for winter survival in turf-type perennial ryegrass. Varia-

tion also existed for the important turf traits. In general, the progeny performed better than the elite varieties of perennial ryegrass for winterhardiness and had higher turf quality than NK-200, indicating the progeny contained desirable characteristics from both parents. Overall, turf quality was negatively correlated with winterhardiness; however, some crosses exhibited better winterhardiness than NK-200 and similar turf quality as the elite check varieties. These results indicate the possibility of developing elite turf-type germplasm with improved winterhardiness. To verify these predictions, crosses that exhibited high winterhardiness and turf quality were selected for seed increase and further evaluation. Also turf plots were established in the fall of 1995 of experimental populations selected for excellent turf quality and increased winterhardiness.

These research efforts include investigating the use of artificial freezing as a selection method for winterhardiness. Equipment and technology for these tests were developed by Dr. Donald B. White, turfgrass specialist, in the Dept. of Horticulture Sciences. Our results suggest that artificial freezing tests take only 16 weeks to complete compared to two years and two locations for field tests. These results indicate that using artificial freezing, to accumulate freezing tolerance genes, combined with field tests could more quickly lead to the development of winter-hardy germplasm than either method used alone.

Other related research efforts include introgressing winterhardiness and herbicide tolerance from red fescue (*Festuca rubra*) into perennial ryegrass, and development of aggressive turf-type perennial ryegrass that spreads with short stolons. Putative *Lolium* X *Festuca* hybrids are being investigated using molecular genetic techniques. Potentially aggressive spreading turf-type perennial ryegrass has been included in our turf-plots. We are extremely excited about the possibilities indicated by our research results. The results of our prediction equations are every plant breeder's dream. However, because this is a new program it will be several years before we know if we have been successful in developing elite turf-type perennial ryegrass germplasm with improved winterhardiness.

¹Blair L. Waldron is a Ph.D. student majoring in Plant Breeding in the Department of Agronomy and Plant Genetics at the University of Minnesota. He is advised by Nancy Jo Ehlke, Associate Professor and Turfgrass breeder.

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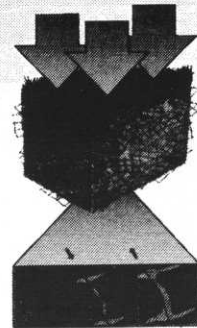
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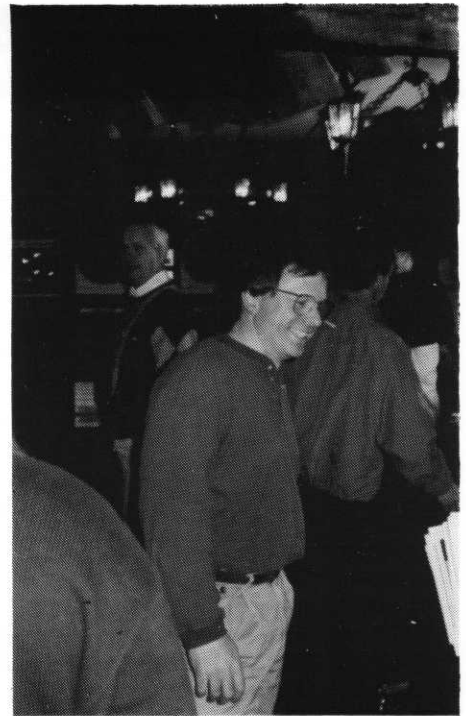
NEW MEMBERS—APRIL 15, 1996

	Class
Mark Kruse	Shoreland CC B
P.O. Box 516, St. Peter, MN 56082	W: 507-931-6403
Denise Kispert	Highland Park GC C
1403 Montreala Ave., St. Paul, MN 55116	W: 612-690-1110
Dean Carlstrom	Anoka-Hennepin Tech. College ... ST
1421 N. 4th St., Stillwater, MN 55082	W: 612-439-7979
John Williams III	University of Minnesota ST
5400 W. 70th St., #308, Edina, MN 55439	W: 612-941-2443
Jeff Latterell	Albrecht Co. F
14008 W. County Road C, Roseville, MN 55113	W: 612-633-4510

RECLASSIFICATIONS—APRIL 15, 1996

Scott Novak	Pine Island GC	BII to B
Daniel R. Swenson	River Falls GC	C to B
Michael Newman	Forest Hills GC	ST to C
Michael Brual	Faribault G&CC	C to B
Jud Crist	Ridgeview CC	ST to C
Ron Furlong	Buffalo Heights GC	D to C
John Hamblet Jr.	Lakeview GC	D to C
Rodney Hanson	Fox Hollow GC	D to C

David Sime, Membership Chairman



BOB SIMONDET of Lesco, Inc. enjoys some laughs at the April meeting.



1996 MGCSA MONTHLY MEETINGS

Monday, May 13
BENSON GOLF CLUB
Host Superintendent: Dave Sime

Monday, June 10
HEADWATERS COUNTRY CLUB
Host Superintendent: Mark Fossum

Monday, July 8
IZATY'S GOLF & YACHT CLUB
GARSKE SCHOLARSHIP SCRAMBLE
Host Superintendent: Steve Schumacher

Monday, August 12
ST. CROIX NATIONAL
MGCSA CHAMPIONSHIP
Host Superintendent: Kevin Clunis

Sunday, September 15
MADDEN'S ON GULL LAKE
STODOLA RESEARCH SCRAMBLE
Host Superintendent: Scott Hoffman

Monday, October 7
FOX HOLLOW GOLF COURSE
Host Superintendent: Chuck Molinari

Wed.-Fri., December 11, 12 & 13
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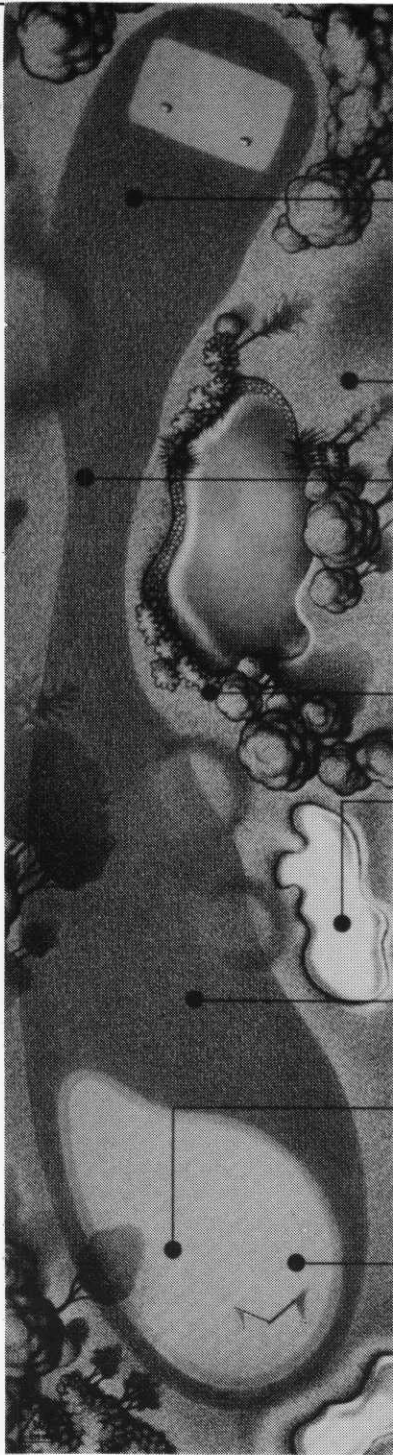
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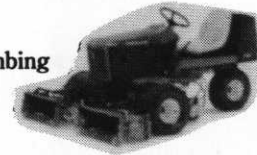
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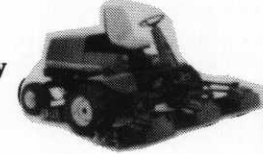


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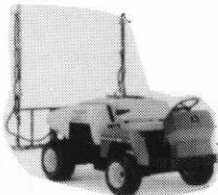


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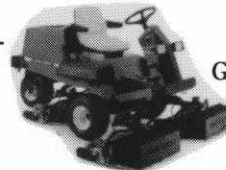


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COMMITTEE UPDATES

Conference Committee

The 1996 MTGF Conference Committee has been hard at work making the necessary arrangements and lining up the best speakers available to make sure the third annual MTGF Conference is a success.

Your MGCSA representation on this committee includes Jim Nicol, Mary Burg, Mike Kelly, Dave Solga, Patty Knaggs, Leif Erickson and Pat Walton.

The Board of Directors of the MTGF has set a goal of profiting \$50,000 from the conference while increasing the quality.

The MTGF Board of Directors is hoping to see a substantial increase in attendance from the allied association's other than the MGCSA. The registration fee for the conference shall not be increased from last year. In order for the MTGF conference to be a success, it is essential that the MGCSA play a major role in serving on the MTGF Conference committee.

If you should have any questions, comments or concerns regarding the conference, feel free to call any of the committee members listed above.

—Pat Walton
Rolling Green C.C.
Conference Co-Chairman

Scholarship Committee

This is a reminder that Legacy Scholarships are available to children and grandchildren of any Class AA, A, B, C, D, Associate and Affiliate members that have been in the association at least five years. The children/grandchildren must be high school seniors or graduates under 23 years of age who plan to enroll or are already enrolled in a full-time undergraduate course of study at an accredited four-year college, university or vocational-technical school.

One Joseph S. Garske Legacy Scholarship in the amount of \$1,250 and three Legacy scholarships in the amount of \$1,000 will be granted to children/grandchildren that meet the eligibility requirements for the scholarship. The Joseph S. Garske Legacy Scholarship will be renewable for one year contingent upon full-time enrollment and satisfactory academic performance. This is a change from what was printed in the March-April issue of *Hole Notes*. The other three are not renewable, but students may reapply to the program each year they meet eligibility requirements. These awards are for undergraduate study only.

We are also offering two \$1,000 scholarships to students in turf-related classes as we have done in the past. These candidates must be beginning or have completed their first year in a two-year turfgrass technical program or have completed their second or third year of a four-year program with major emphasis in turf management.

Candidates must be residents of Minnesota or be employed by a MGCSA member superintendent. Students will be eligible to apply for both the turf scholarships and the legacy scholarships, but will only be able to receive one.

Qualified students may apply for either of the scholarships by calling or writing the MGCSA office and requesting the proper application. Applicants for legacy awards will have until June 1 to return application forms to Citizens' Scholarship Foundation of America, Inc., while applicants for turf scholarships will have until July 1 to return applications to the MGCSA business office.

—Charlie Pooch
U of M Les Bolstad G.C.
Scholarship Chairman

Public Relations Committee

As we move into the summer of '96 we all have expectations about our courses and how they should look and play during the season. Our members also have expectations and most of us would admit that the two do not always agree.

The following reprint from the March/April issue of the USGA Green Section entitled "Great Expectations" gives us a golfer's view of at least the top 10. Even though this was a survey done in the Pacific Northwest, I think the "Top 10" could apply across the country and to each of our courses. The bottom line however is simple: we as superintendents need to do a better job of communication with our members so that those expectations may be more realistic and better understood by all involved. Thanks to the USGA Green Section for permission to reprint this article below.

—Rob Panuska
Waseca Lakeside Club
Public Relations Chairman

GREAT EXPECTATIONS

*The Top 10 Results of a Survey of What
Playing Conditions Golfers Prefer*

By Larry Gilhuly

Psst! Superintendents! Want to start a lively discussion with a group of golfers? Ask this one: "What expectations do you have regarding the playing conditions, maintenance and overall atmosphere of a golf course (home or away) when you play?" In the time it takes to line up a one-inch putt, the answers will fly.

This same question was asked of a cross-section of members of the Pacific Northwest Golf Association and Washing-

(Continued on Page 29)

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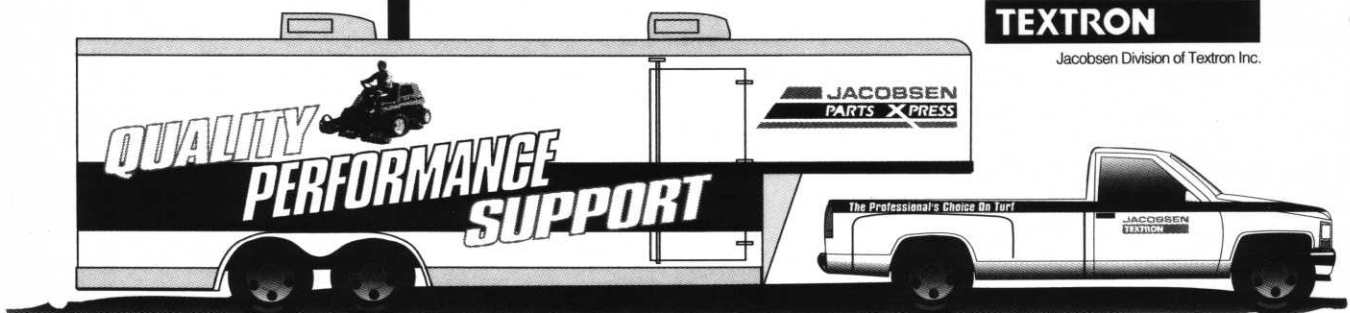


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Great Expectations—

(Continued from Page 27)

ton State Golf Association Boards of Directors, volunteers, and other association members that included men and women of varying ages and playing abilities. Some of the answers were predictable, while others describe the difficulties that are faced by those responsible for the maintenance of a golf course. Without further ado, the "Top Ten" answers were as follows:

1 — Smooth Greens of Adequate Pace

When John Bodenhamer, Executive Director for the PNGA and WSGA, asked the question, the first and most emphatic answer in most cases was fast greens. Not surprisingly, those who still insisted on fast greens were single-digit players.

2 — Notice of Aeration Date

It is not surprising to see this make the list; however, when it appears this high, somebody is not doing a good job of communicating. Whatever it takes, get the message out to your players that aeration will occur on certain dates. The best way to address this situation is to set the aeration dates one year in advance, with tournaments scheduled around these "holey days."

3 — An Open-Minded Superintendent

Let's face it. Maintaining the playing field for over 400 people from various walks of life is like walking through a mine field! Emotions frequently become involved from both sides, and simple issues can rapidly lead to superintendent decline. Don't fall into this trap! Remove your emotions from the table and look at questions from players as an opportunity to educate or learn, not as an attempt to tell you how to do your job. Treat every player's questions or concerns with consideration and respect, and the chances are you will get the same in return.

4 — Proper Course Setup

Improper tee marker alignment and hole locations often receive the fastest and most heated response on the day of the occurrence. Creating a T-square from one-inch irrigation pipe is a simple and fast method for tee mowers and course setup personnel to eliminate misaligned markers. Proper hole location comes with basic training and a knowledge of the game.

5 — Bunkers Maintained

Regularly raked and edged bunkers provide hazard definition and eliminate footprints or other irregularities.

6 — Firm (dry) Conditions

If you have to deal with a poor irrigation system, inconsistent soils, inadequate labor or any number of other variables, trying to achieve firm conditions without losing turf is extremely difficult. Trying to explain these situations to a player who doesn't care to listen may prove to

be one of the most difficult tasks faced by a superintendent. On the other hand, applying too much water does nothing for the game, the grass plant or the budget. It can expand the superintendent's resume if continued over an extended period of time.

7 — Protect the Environment

Golfers are asking more questions about how golf courses affect our environment. These players need to be educated by those who maintain their facilities. As a starting point, the results of the USGA Environmental Research study and the benefits golf provides to people and the environment can be found at your regional USGA Green Section office.

8 — Level Tees

A simple problem that can be corrected only by reconstruction.

9 — Green Grass

To all of those players who believe this is achievable on a year-round basis in combination with point number 6, it is time for a reality check! Only golf courses with high budgets, excellent irrigation systems, consistent soils and weather patterns that seldom change have a chance of achieving this goal. Furthermore, maintaining a totally green golf course increases the use of water, fertilizer and pesticides. Golfers need to realize that a golf course main-

(Continued on Page 30)

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Great Expectations—

(Continued from Page 29)

tained with firm conditions and some brown areas is far superior in every way to a sea of green!

10 — Variety in Course Setup

This is another easy one that can be addressed by establishing a series of hole location charts that assure diversity on a daily and weekly basis.

So, what can we learn from this survey? Three points immediately come to mind, including:

Lack of Education Among Golfers

There is a glaring lack of education among golfers regarding the environment as it relates to irrigation practices and the need to have a totally green golf course.

Expectations

The expectations for smooth greens of adequate pace, notice of aeration, proper course setup, defined and maintained bunkers and variety in course setup are all reasonable and should be achievable.



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Communication Skills

Most important, the fact that many golfers in this survey believe superintendents are close-minded points out the need to work on communications skills. Even if a question or comment from a player appears trivial or is based on emotion, the way the superintendent responds will create the perception of open- or close-mindedness. If you are perceived as close-minded, even logical explanations to suggestions or requests may be considered excuses and will hurt your credibility. Remember, an open mind can open many doors, while a mind that is closed can only shut them.

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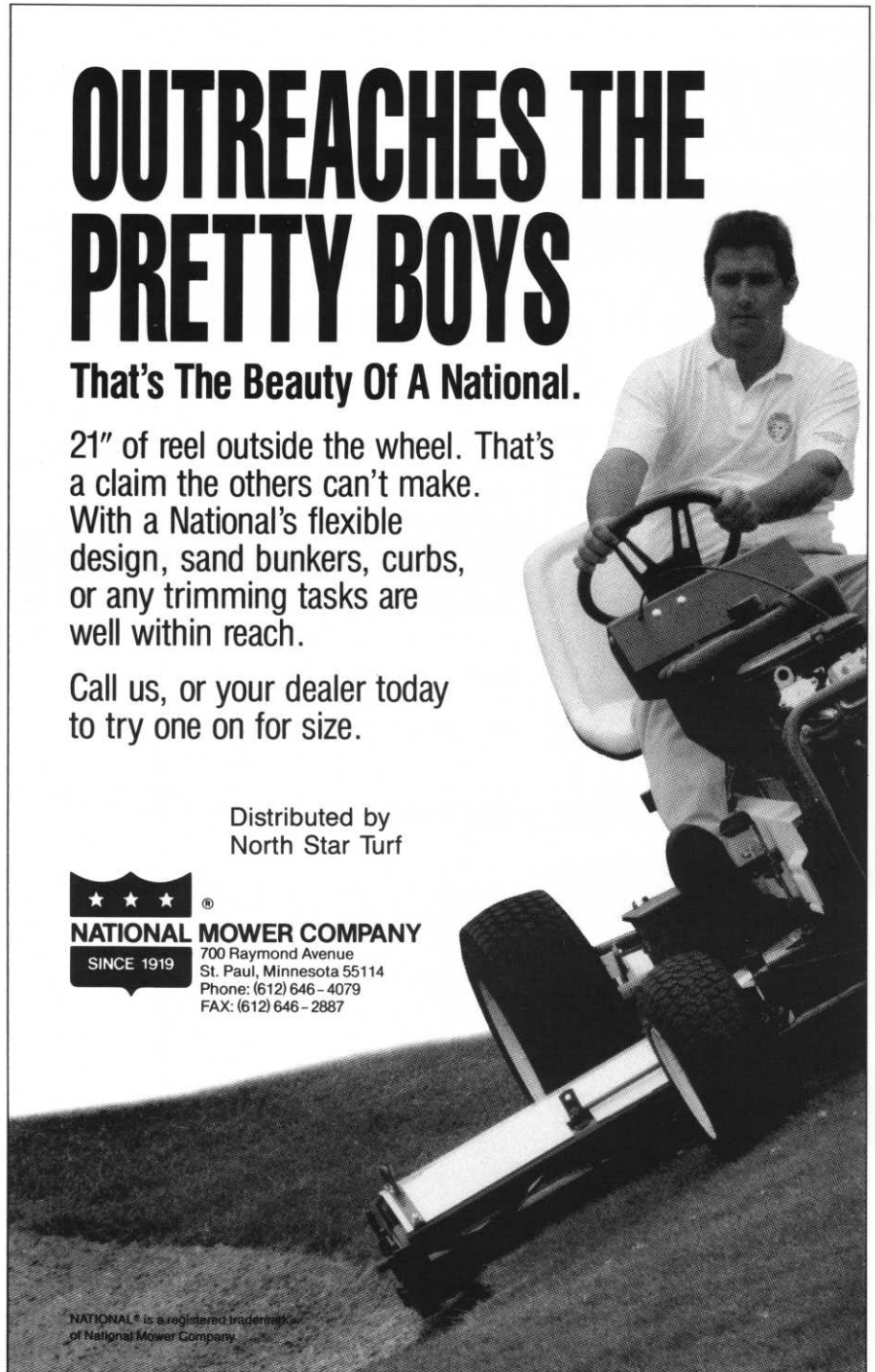
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