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"Finesse it, Harry.  
These greens don't hold."



## FROM THE PRESIDENT'S DESK

LARRY MUELLER

This past July and August were difficult months to grow quality turf. The older courses which are predominately Poa annua were tested the most. Heat and humidity made disease pressure constant and if your irrigation system had any weak spots in it, you found out where they were. Here at Minnesota Valley we had only 2.5 inches of rain for the twelve week period starting June 1.

Members may ask why one course has damage and not another. Informing them of the many soil differences, grass types, traffic, irrigation and local environmental differences will help. Keep those communications open with your club officials and help yourself by educating them in the many variables out there.

In spite of Mother Nature's test of our abilities I have heard that many of the courses have never been better and that is a real compliment to the superintendents.

I would like to thank Tom Fischer and Voyager Village for hosting our August meeting. Tom had the course in fine condition and a nice lunch was served.

Don Lindblad, our tournament chairman and superintendent at Majestic Oaks, has put forth a lot of time and effort to make our 1982 Annual Tournament the best yet. He has promised to be full of surprises and knowing him, I'm sure he will be. I hope to see all of you at Majestic Oaks on September 20.

Congratulations to the following new members and members with classification changes:

New Members: Pat Walton, Class C; Jeff Bond, Class C; Melvin Miller, Class A; Edward Long, Class F. Reinstated: Jim Pagel, Class E; Wayne Idso, Class F. Classification change: Jim Hoffman, Benson Golf Club, Class A.

# LATE SEASON NITROGEN RESEARCH IN MINNESOTA & WHAT IT CAN MEAN TO YOU

**Dr. Don White, Professor & Turf Specialist**

**Department of Horticultural Science & Landscape Architecture**

**University of Minnesota**

"Grass is the forgiveness of nature...her constant benediction...., harvests perish, flowers vanish, but grass is immortal."

John J. Ingalls (1833-1900), speech to Senate, 1874.

The beauty of the words by John Ingalls fails us on an occasional spring when a young man's fancy turns toward all sorts of things. But the golf course superintendent's fancy turns toward bringing the course back from another average Minnesota winter. Average in that there are no two alike.

We do lots of things to "bring the course back" after winter. We aerify, vertical mow, overseed, top dress, fertilize and hope no one really wants to know what happened. Some of the most productive things we can do, however, can be accomplished in the fall before winter. This is the time for us to be thinking about spring. It is the time when grasses develop roots and rhizomes and lay down storage materials that will help carry the plants through the winter and winter-spring transition when most damage seems to occur.

Research here at Minnesota has shown that one of the most productive things we can do to help grass plants overwinter is to ensure that a late season nitrogen supply is available to the grass community. Late season meaning after October 15 in the Twin City area.

Until recent years the standard recommendation has been to stop fertilizing with nitrogen by 10-15 September. The concern was that the nitrogen would stimulate growth and not allow plants to "harden" for the winter. At the same time many superintendents were applying snowmold treatments mixed with organic fertilizer with excellent results. That was alright because everyone knew that the organic fertilizer would not release any nutrients because it was too cold to decompose. But still many of the greens treated in this manner came through the winter better than others. That was one of the reasons why we started to research late season nitrogen nutrition in the 1960's. One of the first things we found was that nitrogen was released from the organic fertilizer even with late applications.

We have been conducting experiments every year since then, investigating nitrogen effects on growth, overwintering and hardiness. In fact we have done many things like applying nitrogen weekly during the fall to try to influence hardiness in the turfgrasses. Results from these experiments have clearly shown that late fall nitrogen applications in the proper amounts do not affect the grass plants ability to harden in the fall. Indeed the late fall fertilized treatments always turned out at least as hardy as the regularly fertilized turves which did not receive nitrogen after September 10. (See Figure 1, Page 5).

Benefits that have resulted from the late season nitrogen application are: 1) more green leaves and stems overwinter; 2) earlier growth initiation in the spring; 3) better recovery from winter diseases; 4) more moderate growth pattern in the spring (no flush of growth as is usual with spring applications); 5) no need for a spring nitrogen application until June; 6) and in many cases a reduction in yearly total nitrogen while maintaining quality.

Our experiments show that the results are associated with late season (October 15 - November 10) applications of one pound of nitrogen (actual) per 1000 square feet, of a soluble nitrogen source such as Ammonium nitrate or Urea or an organic such as Milorganite. The results have often favored the ammonium nitrate over the years but results have been similar with all three sources. If you are on a slow release nitrogen source program, results have been more comparable if the fertilizer is applied two to four weeks earlier than the soluble fertilizers, around the end of September.

Remember to be sure the grass is dry when you apply a soluble nitrogen fertilizer if you cannot water it in.

If you decide to try it this year, now is the time for you to plan your program, order your fertilizer and prepare for making the application. If you decide not to try it, I suggest that you identify a small area on the course where you can experiment and put out your own plots.

In summary our research shows that late season nitrogen applications:

- (1) do not adversely affect hardness.
- (2) result in more green matter carried overwinter and an earlier start in the spring with higher quality turf.
- (3) better recovery from winter diseases.
- (4) moderate growth patterns in the spring.
- (5) a reduction in the total amount of nitrogen needed over the year.
- (6) the soluble forms of nitrogen have a long lasting effect in the spring often maintaining quality to mid-June.

Best wishes for the end of another good season and a better year in 1983.

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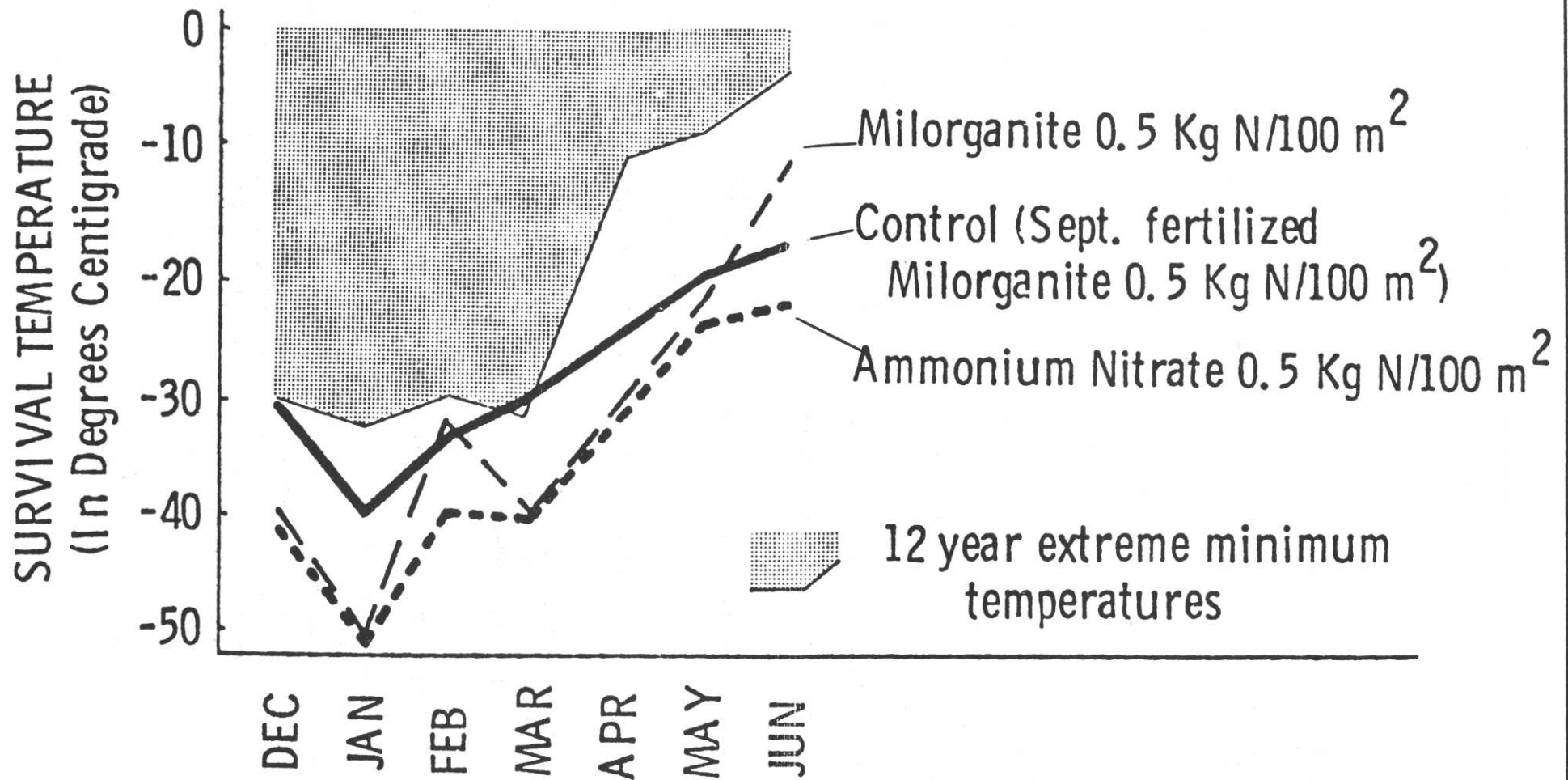
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FIGURE 1

RELATIVE HARDINESS OF PENNCROSS CREEPING BENTGRASS  
AFTER POSTHARDENED (OCT 25) FERTILIZER TREATMENTS



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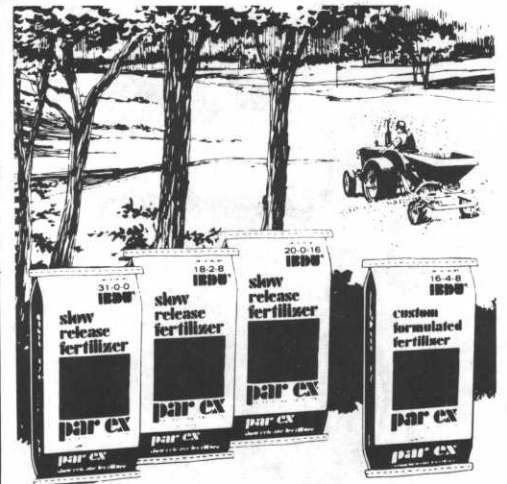
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# PATIENCE KEY TO ANNUAL BLUEGRASS CONTROL WITH ENDOTHALL

Controlling annual bluegrass (*Poa annua* L.) in bentgrass putting greens is a perennial problem. There are a number of pre-emergence herbicides that effectively control annual bluegrass. However, the continuing problem has been to achieve control without damaging the bentgrass' shoot or root system. Injury to the root system is particularly noticeable. Also, Bentgrass damage can be aggravated by poorly drained soil and heat stress.

American golf course superintendents have attempted to control annual bluegrass with quick acting herbicides. Different pre-emergence herbicides have been applied in the past 30 years with marginal success and often unwanted consequences.

Australian golf course superintendents have tackled the problem differently. In 1976 several Australian superintendents began a long-term experimental program of endothall usage that resulted in bentgrass putting greens free of annual bluegrass. Other superintendents using a similar control program are currently achieving the same results.

Endothall has been available for many years; however, the approach in the United States has always been to use it as a short-term treatment at high application rates with the objective of quick eradication. The Australians are doing just the opposite: They are pursuing a program of light, repeated applications appropriately scheduled. Continual application has resulted in complete control of annual bluegrass.

The endothall formulation being used is the sodium salt that contains 17.5 grams of active ingredient per liter. It is sprayed at a rate of 1/4 to 1/3 ounce to 2-1/2 gallons of water per 1,000 square feet. Typically, two applications at 2 to 4 week intervals are made in both spring and fall when temperatures are between 50° and 70°F. The result has been a gradual elimination of annual bluegrass over a 2 year period. There is evidence that perennial types of annual bluegrass are not as easily controlled with endothall as are the annual types.

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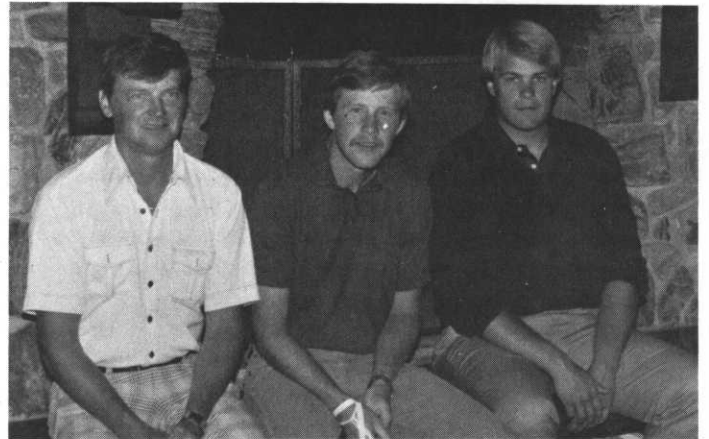
It is important to avoid treatment when the turf is under heat, drought or wear stress. Early morning or late evening treatments have been most effective. Endothall treated bentgrass turfs possess substantially reduced wear tolerance; thus, application should be avoided five days before intense traffic is expected.

An error in application, such as applying when temperatures are too high or at too high a rate, can result in some foliar burn to the bentgrass. However, the turf readily recovers because endothall has no long term soil residual that can cause toxicity problems for bentgrass, especially the root system.

The specifics on how such a long term endothall program might be used in the United States are not established. The rates and timings may vary slightly depending on the location's specific conditions. Those interested in experimenting with such a program should start on a nursery green with a rate of 1/8 ounce per 1,000 square feet and slowly increase the rate until the bentgrass' phytotoxicity rate is established. Annual bluegrass control should be attempted only on greens that contain an adequate stand of bentgrass.

## NEW MEMBERS

Pictured below are M.G.C.S.A.'s three newest members who were present at the August meeting at Voyager Village and welcomed into membership at that time. Left to right, they are Melvin Miller of the Miller's Crestwood Golf Club, Class A; Jeff Bond of the St. Cloud Country Club, Class C; and Pat Walton from the Minneapolis Golf Club, Class C. We welcome all three of these gentlemen into our organization and hope they make the most out of all of the valuable services it has to offer.



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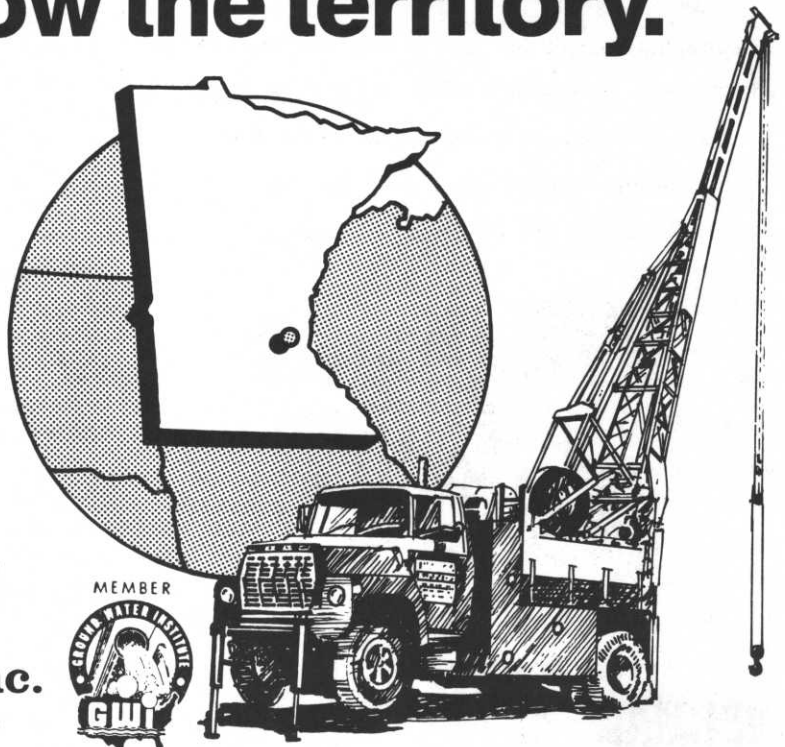
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# Greens Mowing Not As Easy As It Looks

by Bob Williams, Highland Park, Illinois

To most golfers, the mowing of greens is just an insignificant necessity that happens periodically in the routine of course maintenance.

To the seasoned superintendent, greens mowing becomes somewhat routine too until some facet of the operation begins to break down. Then we get into all sorts of problems.

Actually, greens mowing is an art which is coupled with a number of scientific factors. To begin with, good, true, putting surfaces are one of the primary assets and objectives for any golf course. Considerable scientific know-how must go into the development of the turfgrass on these surfaces. Selection of adapted grass strains, soil mixtures, drainage, irrigation, disease control, plus many others are samples of items that have to be in balance before we get around to the mowing and grooming. The mowing of the putting green is the final touch in providing a velvet smooth surface that hopefully allows the golfer to see his ball run true to its target at the bottom of the cup.

In greens mowing, we are harvesting a crop of grass of approximately a one-half bushel per day, per green. If we skip a day of mowing, we begin to accumulate excess leaf blades that can eventually develop into graininess and matting of the leaf blades. Combs or brushes can be used ahead of the mower to help offset this tendency toward the establishment of grain.

What frequently happens unfortunately, is that when a superintendent is short handed for labor, he is inclined to skip the greens mowing occasionally. This practice eventually leads to problems of thatch, grain and poor putting. So by all means, I consider it a MUST to mow greens on a daily basis.

In our procedure at Bob O'Link, we teach our greensmen to repair all ball marks on the green before he actually begins to mow. This avoids scalping off any raised areas. Next, we ask our greensmen to remove the flagstick to a spot far enough off the green so as not to run into it while making a turn with the mower. This practice also avoids the dropping of the pole on the green resulting damage to good puttability.

After our man has repaired the ball marks and removed the flagstick, he now proceeds to make his initial cut across the green in the direction appropriate for that particular day. This first cut is also taken somewhere near the center of the green, relative to the direction for that day. This helps him to keep his lines straighter.

CREDIT: THE BULL SHEET  
JUNE 1982

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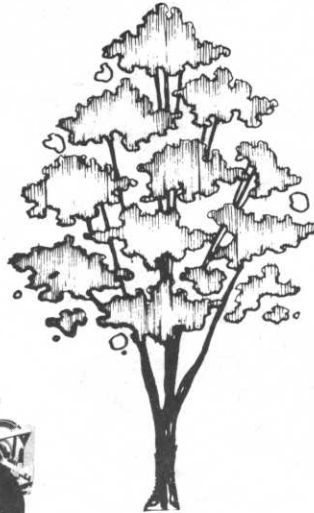
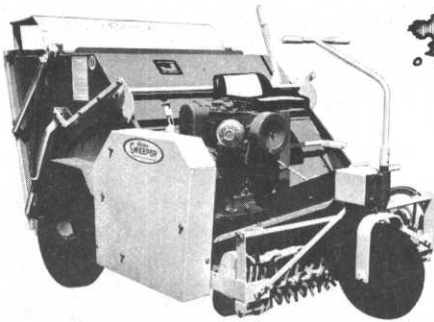


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