THE BULL SHEET, official publication of the MIDWEST ASSOCIATION OF GOLF COURSE SUPERINTENDENTS.

1984 Turfgrass Research Field Day

A University of Illinois Turfgrass Research Field Day will again be held in conjunction with the University of Illinois Nursery Research Field Day. The turf portion of the program will be held in the morning and the nursery program will be in the afternoon on July 25, 1984. The Field Day will take place at the Ornamental Horticulture Research Center in Urbana. Many turf research projects will be available for inspection along with several new projects. The evaluation of cultivars of creeping bentgrass, Kentucky bluegrass, perennial ryegrass, fine fescue, and tall fescue will be available for view. A fairway bentgrass study will be shown in addition to two new studies on the application of plant growth regulators.

Lunch will be available after the turfgrass tour. We ask you to pre-register so that we may make necessary plans. More information will be sent to you prior to field day.

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President's Message

In April of this year, I received a phone call from Dennis Davenport of the CDGA who inquired as to the possibility of acquiring some volunteer help and some equipment to aerate and topdress the greens at a small 9-hole golf course on the grounds at Hines VA Hospital. I told Dennis that I thought it very possible that some of my superintendent friends in the area and myself could help them out. I called Ray Schei at Ruth Lake C.C. and Bob Maibusch at Hinsdale C.C. and got an enthusiastic response. On May 19 Bob and Ray with two crew members from Ruth Lake C.C., showed up at Riverside after their Saturday morning work was complete. With the help of three crew members from Riverside (who also happen to be brothers) Jim, Joe, and Jack Farnan, we loaded up the aerifiers and headed for Hines. The greens at this course are in need of a lot of work as there is no regular maintenance being performed on them. We finished the job in record time under the constant threat of rain. We enjoyed the fellowship with each other and managed to find time to hoist a few to a job well done. My many thanks to the golf course professionals who saw their way clear to making Hines VA Hospital a more enjoyable place for all the patients who are able to make use of the golf course. In the days following that Saturday, I kept thinking about what we had done at Hines and couldn't seem to get it off my mind. I finally realized that I had a really good feeling about what we had done. I was proud of the fact that Dennis Davenport had contacted the MAGCS through me to get some volunteer professional help. I was proud of the fact that those MAGCS members responded so eagerly to my call for help. I was proud of the fact that our professional knowledge and ability may have provided some enjoyment for others less fortunate than us. Thanks to all who helped, and how about same time, same place, this fall?

By now you should have received your MAGCS survey in the mail. It is of vital importance that you fill it out and return it. We need this information about our membership in order to serve you in the best way possible. Membership records are incomplete to say the least because before Dave Meyer took over as Secretary/Treasurer and Penny Meyer took over as Executive Secretary, records were often lost or mishandled with each change of the Board. The new computer will prevent this from happening in the future but we need to bring all those records up to date before entering them into the computer. Do yourself and your association a favor and send in that survey NOW!

It's the beginning of Poa Annua Funeral season and out of respect for Chicago's most loved/hated turfgrass, I will close for now. See you at the Senior's Picnic at Sportsman's Golf Course on July 9th!

Roger A. Stewart Jr

Roger Stewart, CGCS

MAGCS Directors Column

"Selling a Tree Program"

by Sean M. Daley

Ridge Country Club was once heavily populated with American Elms. So as you can easily guess, during the 70's the club lost quite a bit of it's tree canopy. Some trees had been planted, but by and large there were a lot of holes that were pretty well decimated with the exception of some Cottonwoods (which are no bargain). It was decided at the committee level to approach the board with a long term tree purchase plan. On the surface no stumbling blocks were foreseen, as everyone on the committee just assumed that there would be unanimous agreement that this was needed. That was a real bad assumption. We were greatly surprised and taken aback to find out there were a lot of people that liked everything wide open. They were shooting better and better scores as more and more Elms died. Or at least that's what they said. As a result we were faced with selling a program we thought would sail through without a bit of resistance. The following are a few things we did, and a few things we should have done to get the ball rolling.

1. **Initially do one area completely.** The first year we received approval to purchase a number of trees, to see how it would go. We evenly spread these around the various holes where they would eventually do the most good. The golf course just absorbed these trees, and you could hardly tell we had done anything. The next year we filled in 3 holes almost to completion, and everyone could get a better idea of what the course would look like in the future.

2. **Make a map.** This was invaluable. We posted these in the locker room, and gave one to each of the board members. We did not put specific varieties or sizes, but just a general outline of what we are trying to accomplish. This helped get people excited. Almost every man on the board saw areas that we proposed to put trees, that he saw the need also.

3. **Take pictures.** More and more I'm finding the camera to be one of the best sales tools I have. We proposed this program to the board late in the fall when people aren't playing as much. When you try to describe things to people that aren't out there every day like you are, they aren't always able to visualize the bare areas as well as you are. It also would help to have pictures of mature trees. We planted some pretty small stuff, and convincing people that tree is going to be anymore than a broomstick someday takes some illustration.

4. **Allow time.** Finally, give them some time to chew this over. A program of this scope is an expensive commitment for a club. We went in expecting to get automatic approval, and found out the board needed some time to make their commitment as strong as the grounds committee was already committed. I really think the best time to approach your board is the middle of the summer. That way they can look over the information you have given them, then see for themselves when they are out playing. Hopefully, some of these ideas will help you if you are faced with getting a long term tree program approved. It is a big undertaking so it will take a lot of homework on your part.

Pythium and Sand Topdressing

by Clinton F. Hodges
Dept. of Horticulture, Iowa State University

The presentation made by me at the 1981 M.G.C.S.A. annual conference implicated Pythium in a root dysfunction of creeping bentgrass grown on reconstructed high sand content greens. The disease in question killed grass very rapidly and in a manner typical of Pythium "Cottony Blight". Examination of diseased plants, however, failed to yield Pythium or any other pathogen from above-ground portions of the plant. Pythium was found throughout the root system of diseased plants. It is believed that when a green on an old golf course is renovated to sand, Pythium may infest the sand from the collar and apron soil of the old green. The sand probably offers little microbiological competition for the Pythium and increased levels of irrigation and fertilization of sand greens may further promote the Pythium. There is also some evidence that more root mechanical damage may occur in sand than in soil; this could contribute to Pythium infection. This problem has not been observed in the roots of plants grown in traditional soil mixes.

To date, we have isolated four species of Pythium from the roots of creeping bentgrass associated with rapid death of infected plants. We are currently in the process of identifying the isolates to the species level and testing them for pathogenecity. It has been possible to infect roots in greenhouse studies and in some cases reduce the rate of growth of infected plants. Our present observations suggest that the Pythiums in question may infect the roots and co-exist with the plants with minimal damage under mild growing conditions. It may necessitate some form of environmental or cultural stress before death occurs. There are two outstanding problems for the superintendent relative to this disease. These are diagnosis and control. The rapid death of infected plants appears to be due to a foliar pathogen. However, examination of dying leaves usually fails to yield any pathogens and often times even saprophytic organisms are not present. When the root systems are examined they usually appear normal in size and color. Because of this it is assumed that root pathogens are not present. These normal appearing roots can, however, be severely infected by Pythium. The Pythiums associated with this problem do not cause a rot and the degree of discoloration may not be detectable with the naked eye. We have found that when we properly incubate what appears to be a healthy root from these diseased plants, Pythium will grow from the root within six hours. We are suspicious that these Pythiums damage plants by interfering with water relations, not by rotting.

Control of this problem in the field remains elusive. Intense aerification followed by application of Pythium specified fungicides into the aerifier holes may slow the disease. There is some indication that wetting agents used in conjunction with the fungicides may be beneficial. It also appears that following renovation of a green the first time the disease strikes it most severely; each subsequent year it becomes less severe.

Our primary research objectives for the next 2-3 years will be as follows: 1) Continue to collect and identify Pythium species associated with roots. 2) Determine pathogenecity of Pythium species and the conditions necessary for injury or death to occur. 3) Determine the nature of the pathogenecity; i.e. in that the roots are not rotted, how are the plants ultimately killed. 4) Examine approaches to control.

Credit: Divots, 4/84

Assuming Distribution and Sales of Turf-Cal

Cecil F. Kerr, Mallinckrodt, Inc.

Approximately three and one half years ago Dr. Woolson from USDA Beltsville, Maryland called me asking how much tri-calcium arsenate could I sell if a flowable was available?

I wasn't sure at that point if we could sell a gallon of material. Ten years ago at least 1,000 programs were terminated when OSHA banned Chip-Cal because of the dust in the manufacturing process. The product was well known and the need evident.

Dr. Woolson, John Alden of Woolfolk Chemical and I surveyed the present need for this product. Our surveys showed interest in using tri-calcium arsenate flowable in Massachusetts, Pennsylvania, Maryland, Indiana and Ohio. Our research department and I visited Purdue University plots and fairway demonstrations at several golf courses including Lafayette Elks and Danville Country Club in Illinois.

As a result of our survey we prepared a five year sales projection. Costs were much higher than superintendents in the past paid for the program. Yet, a mower is four times higher than twelve years ago.

We were pleased with the results of the programs conducted by several superintendents - the quality of the flowable was improved!

The cost of the program is expensive; however, the benefits are worth the price. Turf-Cal controls crabgrass, goose grass, chickweed, **Poa annua** and soil insects. After control is once achieved in a 2-3 year period, the maintenance dosage is less than the cost of insect control with existing insecticides.

This program is not for everyone. It is only adapted to competent superintendents who are willing to follow a total ten point program. Some golf courses that cannot be properly drained should never use this program.

We decided to market tri-calcium arsenate flowable (Turf-Cal) in the beginning to superintendents who have had previous experience with arsenicals. We also decided to limit our distribution to distributors with arsenical sales experience at the beginning of the program. We conducted initial educational programs organized by Mel Lucas in Long Island, N.Y. & Kermit Delk in Springfield, Ohio. Distributor meetings were held with Terrie Co. in New Jersey and distributor sales meeting were held in Georgia and the Carolinas. We also held superintendent meetings with Cornell Chemical in Baltimore and superintendents' meetings in Indianapolis, Ft. Wayne and South Bend with Turf Specialties.

We discussed the importance of following our prescribed ten point program for removal and prevention of **Poa annua** in cool season grasses.

1. **Drain low, wet areas:** Use excavated soil to fill low spots. Slit trenches 3-6'' deep, filled with sand may also be used to rid area of excess moisture. Aerify and topdress wet areas with sand. Good grass requires good surface and subsurface drainage.
2. **Correct soil acidity:** Turf-Cal is most effective in soil with a pH range of 6.0 - 7.7. If lime application is necessary, allow four weeks before applying Turf-Cal.
3. **Eliminate Phosphorus in fertilizer programs:** use no phosphorus or as little as possible, the higher the phosphorus supply the more Turf-Cal required to achieve **Poa annua** control.
4. **Remove thatch and reduce compaction:** Aerify intensely

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Aftermath of 1983/84 Weather on Trees and Ornamentals

by Dr. Paul M. Alexander
ChemLawn Corporation

The combination of severe drought/heat stress during the summer of 1983 and intense cold during the following winter has resulted in adverse affects on various trees and ornamental shrubs. Much of this damage has already been seen in the form of outright death of such plants, but I am of the opinion that the most insidious form of this injury — **delayed** kill — is yet to come. There are several good reasons for my feelings on this point.

First of all, many of the plants affected by heat and lack of soil moisture last summer were severely weakened in terms of reduced root structure and premature leafdrop. These two factors, in turn, meant that carbohydrate reserves (stored food) were depleted and were not replenished before colder weather set in.

Secondly, after rainfall finally started again, many areas of the country were afflicted by **too much** rainfall. In these areas, soil oxygen was practically non-existent for several weeks. This further weakened many of those plants already under severe stress. They simply could not develop roots which were so badly needed, thus further depleting carbohydrate reserves. Many of these plants were doomed **before** the severe winter set in.

Thirdly, extreme low temperatures and high winds in December and January damaged the trunks, limbs and buds of the previously weakened plants. This was bad enough in itself, but the final blow was yet to come.

Very few areas of the country had a "normal" spring. Instead, widely fluctuating temperatures and rainfall during March, April and May added an additional adverse affect to the breaking of winter dormancy. In the upper South and in portions of the lower Midwest, many plants budded out in late March and April — only to face sub-freezing weather within a matter of one or two weeks (or less). No further discussion of what happened to those buds is needed.

Now, as we approach what we hope will be more favorable weather, it will be easy to assume that the worst is over and that we can get on with "business as usual". However, my years of experience in this field tell me otherwise. It is **extremely** probable that we will see many of these weakened plants initiate what appears to be strong, healthy, new growth. However, because of the depleted carbohydrate reserves, these new growth flushes will probably live for a month or more, then collapse very suddenly. This collapse (death) will occur when the limited supply of food reserves is exhausted — there will not have been enough time for photosynthesis to have replenished these badly needed food reserves.

In a nutshell, what I am saying is that all of us in the plant care business are going to see a fairly high rate of death among the trees and perennial ornamentals before this summer is over and that we need to understand **why** this has happened.

If you are in a position to be able to alert your owners and/or members of this probability, I believe it would be a good idea to do so as soon as possible. It is axiomatic that informed people are more understanding of such a situation if and when it occurs; this may make your particular situation a lot more livable.

(cont'd bottom page 12)

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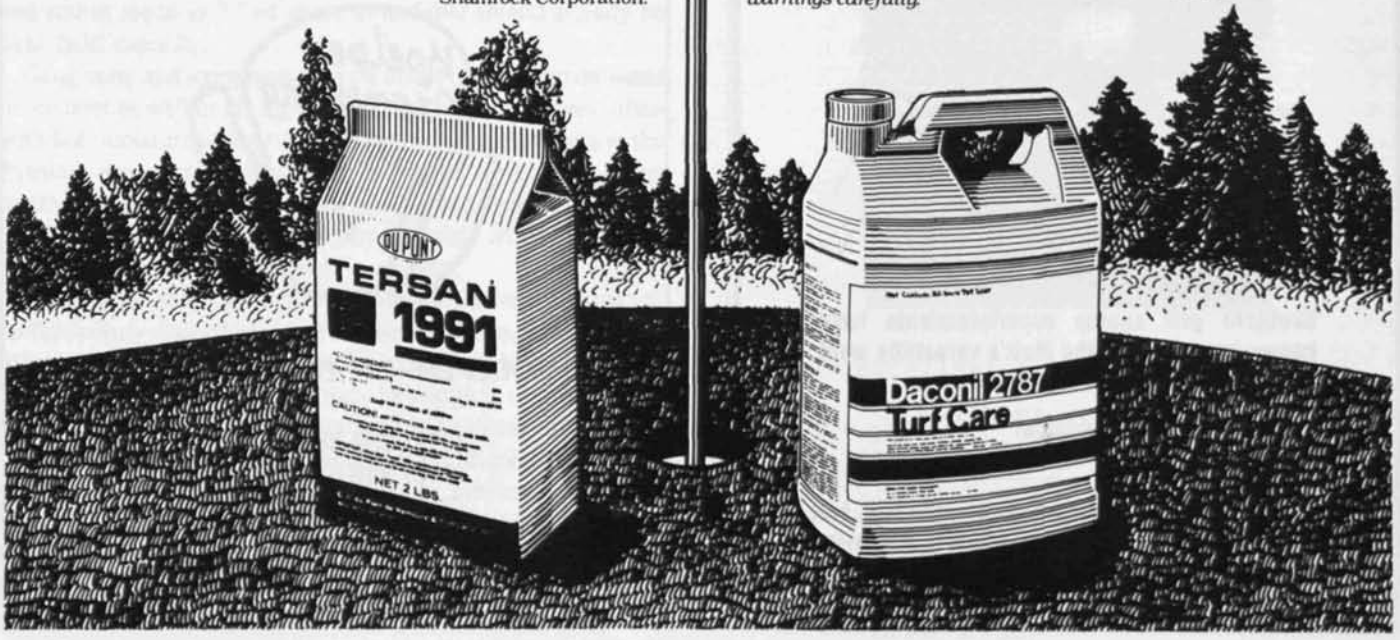


Management of Pythium

by Alan T. Fierst
Oak Park Country Club

Pythium, Grease spot, Cottony blight, Damping off, Root rot — whatever the name, few turf diseases can strike so swiftly and disrupt the viability of a turfgrass sward. During the day or night, oftentimes within a period of a few hours, Pythium can effectively destroy large areas of a stand of turf. Nearly all types of turfgrasses are susceptible, only the improved bermudagrass cultivars are resistant or to some degree tolerant of Pythium. No varieties of bentgrass or ryegrass are known to withstand the disease without the aid of some fungicide treatments. Areas of annual and perennial ryegrass, annual bluegrass, and the creeping and colonial bentgrasses left untreated by preventative fungicides during periods of high Pythium disease pressure simply will not survive an outbreak.

Pythium remains year-round in the turfgrass canopy, feeding on thatch and decaying organic matter and is therefore a saprophyte. It waits in the upper soil and thatch layer for a few primary keys, a series of proper conditions to become active. It's usually called a warm climate disease but Pythium cuases the most severe problems when temperatures in the cooler humid areas reach daytime highs of 85°F to 95°F and nightly lows range above 70°F.

Pythium can be an extremely severe disease, commanding attention even before it is actually seen. The thinking Golf Course Superintendent uses several primary keys such as air and soil temperature, humidity, nutrition levels, soil moisture and water movement channels, as well as the calendar to clue himself on the likelihood of Pythium. The calendar is among the easiest of clues - periods of tie, be they days, weeks, or even months are often criteria of prediction. These can be and often are repetitious from year to year when forecasting certain periods of disease pressure. In the Chicagoland area as well as the upper Midwest the months of July and August are the periods when conditions most often favor Pythium.

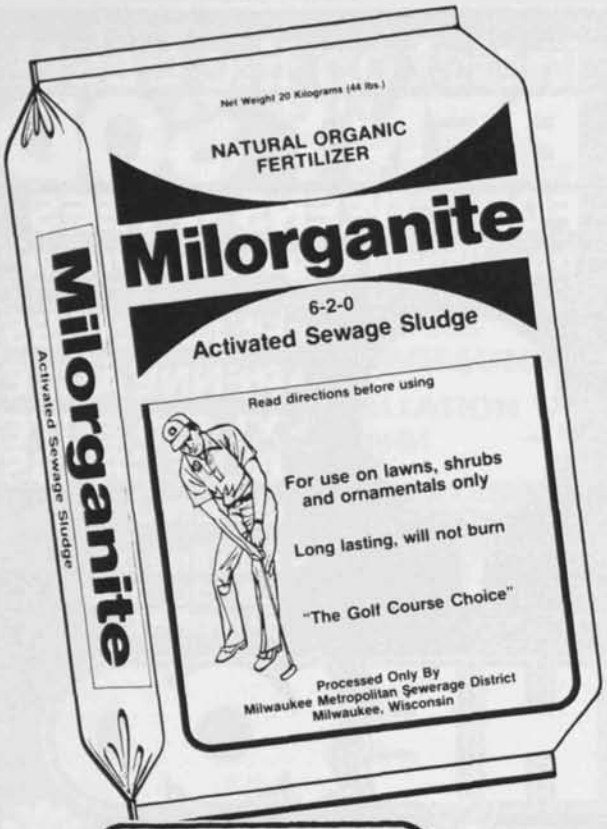
These conditions are a combination of very humid, stagnant air masses, days and nights are unusually calm and hot. Large quantities of water are available to the turf - H_20 artifically added through irrigation and the infrequent rains that can be very heavy and add as much as 7'' of water to turf that should already be near field capacity.

Geography and topography have a direct relationship on water movement as well as air movement. Stagnant air masses, often with hot, moisture laden air, are important contribvutors to the Pythium inoculum. Heavy, dewy mornigns when there is just no trace of a wind, **those** are the times when Pythium is likely to surface. Add to that the water from nightly irrigation and/or rainfall and the recipe becomes just right.

Many of the older, metropolitan golf courses were constructed on flat, poorly drained areas surrounded by dense, mature stands of trees. Moisture and air just do not move readily, and Pythium disease pressure is often very high. Drainage is very important to disease control, meaning drainage both of air **and** water.

Nutrition also plays a big factor in any disease prevention regimen. While some readily available nutrients may help supress some diseases, at the same time other disease pathogens are using some of those same nutrients for their viability. Pythium development is favored in lush, highly succulent turfs which have been overfed with nitrogen.

(cont'd. pg. 11)



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