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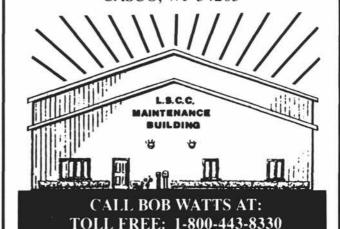


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11

Verti-Drain Aerification Preparation

by Bryan Wood

Preparation for Verti-Draining involves the same general good preparation practices as conventional aerifying. With hundreds of golf courses here in the Midwest now either owning or contracting the use of the Verti-Drain, I hope several of you may benefit from suggestions which we've found helpful toward achieving optimal results.

Healing time with the Verti-Drain is about the same as with other aerifiers. Many superintendents like to fertilize a week to ten days ahead of any aerifying so that turf is actively growing for quick healing of the tine holes. The Verti-Drain will give the roots a deep place to grow, but you still have to feed them. Remember to refer to soil tests for fertilization needs to determine addition of lime, sulphur, etc.

Be sure areas to be aerated are adequately moist so that the turf surface is pliable and penetration is easier. Irrigation is usually necessary, up to 10-15 minutes per green during late night or very early morning prior to aerating.

Be sure areas to be aerated are adequately moist so that the turf surface is pliable and penetration is easier. Irrigation is usually necessary, up to 10-15 minutes per green during late night or very early morning prior to aerating.

Be prepared to use 1-½ tons of topdressing mix per 1000 square feet (straight sand weight — peat mixes of course weigh less). I recommend choosing a mix with uniform particle size that won't re-compact as easily as some mixes that contain everything from talc to pea gravel. Topdressing mixes vary so much in particle size, consistency, and density that needed amounts vary.

Because the Verti-Drain uses a pitchforking action to relieve compaction, solid tines are a popular choice over coring tines, and there are no cores to rake. You can change your soil profile by adding the desired topdressing mix when using either solid or coring tines. When using solid tines, many superintendents like to work a green ahead of the operator spreading about a ton/1000 sq. ft. of topdressing just before Verti-Draining. This helps dry out the mix making it easier to

When using solid tines, many superintendents like to work a green ahead of the operator spreading about a ton/1000 sq. ft. of topdressing just before Verti-Draining.

drag in. Plan on adding the remaining topdressing as needed to fill those deep tunnels the tines make, especially after watering in. Good common sense is a must when spreading topdressing prior to Verti-Draining. If it's raining, many superintendents take advantage of the moist greens and go ahead and Verti-Drain, but go back and topdress later with dry topdressing. And if it's 90+ degrees, the turf may "bake" underneath the topdressing if spread ahead of time, so topdress after aerating.

Frequency leads to best results with the Verti-Drain. Like any conventional aerifier, it needs to be used regularly to increase and maintain results. The severity of your compaction and soil-type problems will best determine how often you deep aerify. It's not unusual for golf courses with Verti-Drain to aerify with it 2 to 4 times per year.

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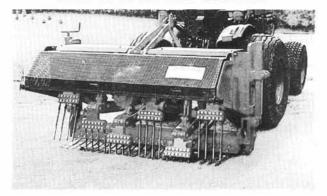
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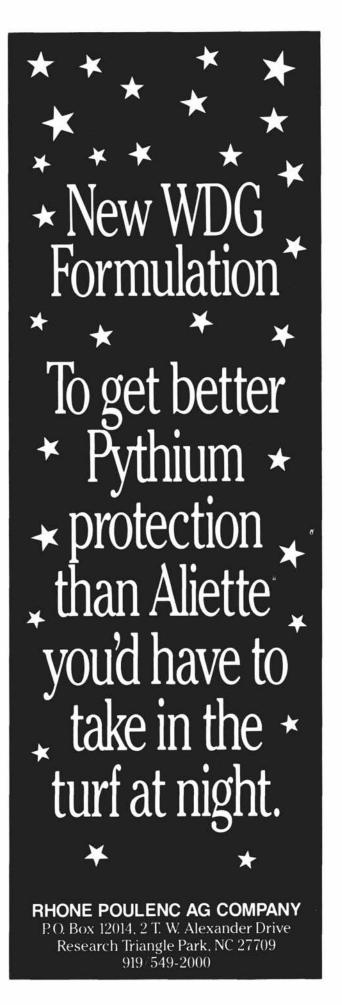
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Construction Underway On University of Illinois Experimental Green At Cantigny

by Tony Rzadzki, Supt., Cantigny Golf

As most of you know, the Chicagoland area superintendents have longed for a research test plot in **our** area, a place where we could use data closer to home rather than many miles south of here. Well, that is exactly what we are going to have.

Last September I was paid a visit by Dr. Randy Kane and Dr. Hank Wilkinson. They were both very excited and bubbling over with ideas and ambitions for this new project. We had talked about it earlier in the year, but this day seemed like the day that our project would be born and soon come to fruition. Expectations were so high that day that both the dear doctors had dreams that their green would have turf on it by late October! The excitment was contagious and I was beginning to slip into their euphoria ... then reality slid in when I asked one simple question, "Who is going to fund this operation?" Their bubble started to leak and the wind in their sails slowly dropped to a dead calm.

Today is June 30, 1993. After ten months of negotiating for money and a design, the University of Illinois Green is well underway. Cash and material donations have been promised by local turf grass organizations and businesses. As usual, Hank is running on a shoe string, but all indications look great for the completion of this project. Cantigny has contributed the space, yearly maintenance, and the construction of the green.

The University of Illinois Green is going to be built to USGA specifications and maintained just as intensively as all of our other putting greens. Every effort will be made to insure that the experimental green is comparative to other greens used for professional play.

The total size of the green will be 8,000 square feet. The green will be divided by impervious walls into four sections of 2,000 square feet. In each quadrant a different soil mix will be used to test the performance of various bent grass species on each plot.

Each quadrant will have one of the following soil mixes:

Quadrant 1. 80% sand - 20% peat

Quadrant 2. 100% sand

Quadrant 3. 70% sand - 10% peat - 20% calcined clay

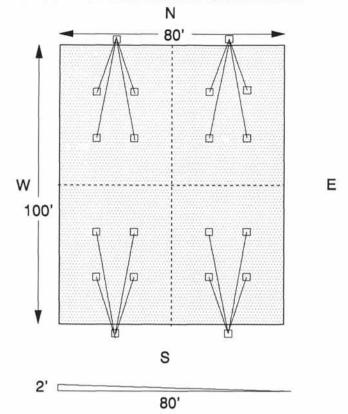
Quadrant 4. 80% sand - 20% calcined clay

Each quadrant will also have four collection 'pots' buried in the soil mix profile. These collectors will drain to sump basins outside of the green where the leachate water can be collected and analyzed. We are trying to measure the amount of water that leaches through each profile, the amount of potential binding of pesticides and fertilizers in each, and possibly through the information gathered, come up with recommendations for the reductions of pesticide and fertilizer usage in future greens construction.

On top of each quadrant various cultivars of bent grass will be planted and judged for performance on each soil mix. These cultivars may include the following; Putter, South Shore, SR 1020, Pennlinks, and others. Experiments will also be performed with pesticides and nutrients along with the basic maintenance practices that are performed daily.

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This facility is being constructed to collect data for five years or longer. The site is near our maintenance facility and golf course fairways. It is readily accessible to visitors, and I welcome anyone who would like to come out and visit or donate some time.

It took ten months of planning and reality is finally setting in. The excitement that I felt for a while last year is blowing up my bubble right now and I know that it will not break. This is truly the most ambitious, exciting project that I have ever undertaken, and aside from all of the work involved, it is a lot of fun too.

If anyone has any questions about the University of Illinois Green, please feel free to call me or Randy Kane.



Tony setting grade stakes for the new experimental green.



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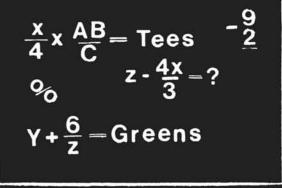


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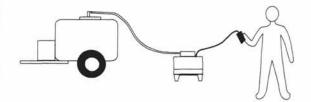
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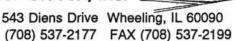
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August 4 — ILCA Field Day at Shermin Nursery

August 16 — MAGCS meeting at Turnberry G.C.

August 17 — University of Wisconsin Field Day at O.J. Noer Turfgrass Research & Education Facility

August 18 - U of I Field Day

August 21 — MAGCS Family Picnic & Kane County Cougars

August 30 — John Deere Golf Tournament at Elgin C.C.

September 21 — MAGCS meeting at Shoreacres G.C.

September 27 — Northern Illinois ITF Golf Day at Riverside G.C. and Ruth Lake Golf Club

October 4 — MAGCS meeting at Bartlett Hills G.C.

October 22 — Fall Dinner Dance at River Forest

November 10 — MAGCS Turf Clinic at Medinah C.C.

Jan. 31-Feb. 7 — GCSAA Conference, Dallas, Texas

Under the job file this month I am holding two resumes for anyone who would like to see them. Give me a call at 708/428-5009, my answering machine will pick up the calls during the day. Best time to talk to me is in the evening. Tim Anderson is presently an assistant in Kansas City, MO and wants to relocate to the Chicago area. His home phone is 816/523-4523. The other resume is a young woman who prefers not to have her name published at the present time. She is looking for a gardeners or horticulturist position. She holds a B.S. in Horticulture from the University of Illinois.

classes at the below location. Call Ms. Patricia A. Susin, 708/990-0740 for information and a pre-enrollment form. Hort. 212: Landscape Contracting (Oak Brook) — Interpretation of the landscape architect's plans and specifications; estimating quantities of materials; and computing costs and procedures for bidding and executing landscape construction. Instructor: Prof. Floyd Giles; Location: Suite 200, Office of Statewide Programming, 1010 Jorie Blvd., Oak Brook, IL; Date & Time: 6:30-9:45 p.m., Mondays & Tuesdays, Sept. 13-Oct. 26, 1993; Credit: 3 hrs. \$261; plus \$30 instructional support fee.

U. of I., Division of Extramural Programs has scheduled fall

Hort. 251: Landscape Maintenance (Glencoe) — Evaluates criteria for ornamental woody plant selection, cultivation, valuation, and maintenance; links the technical skills and practices for commercial arborists to an understanding of woody plant physiology and anatomy; emphasizes marketing and promotion of horticultural expertise. Instructor: Prof. David Williams; Location: Room 3, Education Center, Chicago Botanic Gardens, Glencoe, IL; Date & Time: 6:30-9:45 p.m., Wednesdays, Sept. 8-Dec. 8, 1993; Credit: 3 hrs. \$261; plus \$30 instructional support fee.

For Sale: 1 Toro Greensmaster; 1 Ford 2000 Tractor; 1 Ford 231 Tractor; 1 Ford Front Loader Tractor; 2 Jacobsen HF-5 Fairway Mowers. Call Scott Armstrong, Palos Country Club, 708/448-6550.

Your editor was able to get a few days fishing on the Chippewa Flowage in early July. For a day and a half I never had a strike or a nibble. Then wham — a 32" musky chose my little #2 rooster tail lure. An hour later, I caught and released another musky, but this time it was only about 16". The next day I caught and released a 26" northern pike. Altogether I was able to catch 9 fish, not a lot of fish, but fishing is more than fishing. It is the time away to cherish what a beautiful place we live in. I was witness to a wolf swimming across a narrow part of the lake, saw baby loons on the back of its parent, saw American eagles, both mature and immature birds and countless beaver.

University Park, PA — Applications are now being accepted for Penn State's two-year Technical Turfgrass Management Program for the class beginning in October of 1994. There is an application fee of \$35.00 and the deadline for applications is December 31, 1993. Applications can be obtained by calling (814) 865-8301 or by writing to: Turfgrass Management Technical Program, The Pennsylvania State University; 306 Ag. Administration Building, University Park, PA 16802-2601.

Marty Baumann at Fresh Meadows Golf Club in Hillside, IL is looking to hire a full time mechanic. Please call Marty at 708/449-3457.

There has been a concern regarding the pre-payment policy. To clarify this situation, the MAGCS office will only contact you if you **did not** get your money turned in before the field has filled up. If you sent a check in, and want to confirm that the MAGCS office has received it, you may do so by contacting Penny Meyer at 820-8181.

Please note that **The Bull Sheet** has a new FAX number: 708/428-5009. It is the same as my phone number and answering machine. You may either speak to me, leave a message on the answering machine, or send a fax to the same number.

Brad Johnson is the new superintendent at Kline Creek G.C. in Wheaton.

"August"

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Endophyte-Enhanced Turf: Not Just For Bug Control

by Dr. Tony Koski, Asst. Professor Extension Turfgrass Specialist, Colorado State Univ.

What is an Endophyte?

Just to refresh your memory, or to lay to rest misconceptions about endophytes ... an endophyte, simply put, is a bacteria or fungus that lives within a plant without causing disease. The endophytes of greatest interest to turfgrass managers and researchers are fungi from the genus Acremonium that infect perennial rye grass, tall fescue and fine fescue.

The fungus can be transferred from plant-to-plant in two ways. One is via seed that came from a mother plant that was also infected with the fungus. The second way is by tillering and rhizomes as affected mother plants produce new plants which in turf contain endophytes. The fungus does not grow into the roots of grasses, an important point to remember when it comes to using endophyte-enhanced turf for insect control. Some seed varieties tend to possess high endophyte levels, but this will vary from one seed to another. The endophyte can be easily killed if the seed is stored too long of a period, especially under warm conditions.

Once an endophyte-containing plant is established it is virtually impossible to kill the endophyte unless, of course, the plant is killed. Pesticides, including fungicides, do not appear to significantly reduce endophyte levels in turf.

Once an endophyte-containing plant is established it is virtually impossible to kill the endophyte unless, of course, the plant is killed.

Endophytes apparently CANNOT be spread to non-infected plants via grass clippings, mowing or just by growing next to an infected plant. The only way to introduce endophytes into an existing turf is via overseeding with seed that contains the endophyte. To get endophyte-enhanced seed, you specifically request it when you are purchasing seed. The seed tag will indicate what percent of the seed contains endophytes.

Insect-Resistant Turf

The first recognized benefit offered by endophytes was that certain insects, most importantly those insects that feed on leaves or suck juices out of the plant leaves appear to be affected by the presence of endophytes. Top feeding insects like army worm, cutworm and sod webworm larvae, as well as adult billbugs, chinch bugs and green bugs (aphids) are most affected. The mechanisms by which the plant/endophyte combination repel these insects is probably a combination of non-preference (the endophyte-infected plants just plain taste or smell bad to the insect) and antibiosis (toxic chemicals occur in the plant which kill the insects or interfere with normal insect development). It is thought that at least 70% of the turf should contain endophyte-enhanced plants to substantially repel damaging insects. Even under considerable insect pressure, a loss of 30% of the turf to insects can often be tolerated until the area can regain its density by itself or via overseeding.

Other Benefits of Endophytes

Research has demonstrated that endophyte-enhanced turf is more resistant to environmental stresses like heat and drought, (continued on page 20)

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(Endophyte-Enhanced Turf continued)

and more resistant to infection by other fungi which cause turf diseases. Fine fescue varieties which contain endophytes appear to grow better in shade than do identical varieties. Stands of endophyte-enhanced turf appear to maintain density better (and have fewer weeds), probably because they are less prone to damage by insect feeding, disease and heat and drought stresses.

Is There a Down-Side to Endophytes?

Endophytes can cause problems for animals which may feed on infected grass plants. For example, cattle may get "fescue summer syndrome" (fescue toxicosis), sheep may get "ryegrass staggers" (not to be confused with the behavior of some golfers on hot afternoons!) and mares may suffer from agalactia (suppressed milk development). Domesticated animals do not seem to distinguish between grass which contains endophyte and that which does not. On the other hand, wild animals (like deer) are possibly able to discriminate in their feeding so as to avoid endophyte-containing turf. Endophyte contamination in pastures is a major problem for beef and sheep producers in some parts of the country.

In summary, the use of endophyte-enhanced turf varieties is yet another way for turf managers to practice integrated pest management. And while doing so, they may just be producing turf areas that are also more disease and stress resistant. Maybe it will even keep the geese and elk away!

Credit: Hole Notes, May '93

GCSAA offers time management correspondence course

LAWRENCE, Kan. — Not enough hours in the day to do everything you need to do, plus everything you want to do? A new correspondence course offered by the Golf Course Superintendents Association of America (GCSAA) was designed especially to help overcome this "time-less" problem.

The "Time-Management" correspondence course was written by one of GCSAA's most popular seminar instructors, Bree Hayes, PhD., president of the Hayes Group. She says the course was designed to be comprehensive, practical and challenging — "a real journey of self-exploration."

During the course, the student will analyze personal time expenditures, assess time "wasters" and "thieves," and learn how to set goals, delegate work and stop procrastinating. The course materials also include "essential" time management tips.

GCSAA also has correspondence courses available on the topics of media relations, underground storage tank management and hazard communication. GCSAA and its entire curriculum of seminars and correspondence courses are nationally accredited by the Accrediting Council on Continuing Education and Training, which is recognized by the U.S. Secretary of Education.

Successful completion of the "Time Management" correspondence course earns 0.7 CEU toward GCSAA certification or renewal. The course costs \$50. To order by credit card, contact the GCSAA education department at telephone 913/832-4444, FAX 913/832-4433. Mail written orders to GCSAA Education Department, 1421 Research Park Drive, Lawrence, KS 66049-3859.

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