



WESTERN VIEWS

September - October, 1998

Official Publication of the West Michigan Golf Course Superintendents Association

1998 Golf Day a Success!

The 1998 Golf Day was held at Cascade Hills in Grand Rapids. The day turned out to be a nice one, and this was an exception to the rule when Cascade Hills has hosted an event. Usually it rains, but the sun prevailed on this day. There were 149 people in attendance, and we raised approximately \$7000 for turf research. The Cascade Hills staff did a great job and we appreciate the hard work. We would also like to thank the membership at Cascade for providing us with the facility for the day. We also owe a big round of applause to the vendors who helped make this a special day with their contributions. Next year's event will be held at Walnut Hills in Lansing, and Kurt is already feverishly prepping the golf course in hopes to keep pace with the conditions that were experienced at this year's site. We hope to see everyone there, and as always, I'm sure it will be an excellent time.

SERIALS

Editor's Note: Please write me if you have any corrections or if you are interested in doing state university for us at:

Western Views
3725 Cascade Rd., S.E.
Grand Rapids, MI 49546

President's Message

Financial planners say you should pay yourself first — you know, save for a rainy day. But this summer, the job came first, and the rains never came! It's now time to pay back yourself and your family for those long hours you were away at work. And when they ask you what you do in the winter, tell them, "I get a life." Get the quality time you need.

Another "quality time" event is the Superintendent Meetings we've had this year. I want to thank the supers and speakers involved and the board for their work in putting them on. Also, Al "B" and Johnny "C" did very nice at Golf Day, very professional.

There are a lot of quality people in our association and involved with golf in West Michigan. I feel very fortunate to know them. There are, though, a few that have caused problems for some of our members this year, and I feel bad for them. It seems that it is easier to move people out than work together through problems. I am glad to see that G.C.S.A.A. has made job security issues a priority. This will be a hot topic in this industry for years to come.

Happy Thanksgiving,
Doug Boyle C.G.C.S.
President

Annual Meeting and Elections

The 1998 Annual Meeting was held at RAILSIDE Golf Club on October 13th. It was a blustery day but still there were 54 people in attendance. It was the day for the Chapter Championship and Elections as well. Joe Hancock won the Chapter Championship with a great round of 74. The Elections were held and the results were as follows: President Al Bathum, Vice President Jeff Hopkins, Secretary/Treasurer Keith Paterson, Director Dan Litogot and Kurt Thuemmel. Remaining on the Board as Directors in 1998 are John Fulling, Kathy Antaya, Roger Barton and Paul Richter. Immediate Past President Doug Boyle also remains on the Board for one year. Our current balance is \$13,264, and our current membership is at 290 people. This year, dues will stay the same, but there will be a \$10 fee for the job referral service to cover costs.

Vice President Attends Chapter Delegates Meeting

Our new Vice President, Jeff Hopkins, attended the Chapter Delegates meeting in Lawrence, Kansas on September 18 and 19. It is a requirement that we send a person from our board to this annual event. Crucial issues affecting the National Association are discussed. This year, the main topic of discussion focused on the next Chapter Affiliation Agreement, the current one expiring in December 1999. If you have any comments or concerns, please talk to a board member before this agreement expires. A Meet the Candidates Session is also held so that the delegates can ask questions and discuss subjects of concern with future National Organizations' board members.

Michigan Turfgrass Environmental Stewardship Program Announced

Mark your calendar for additional opportunities to join the Michigan Turfgrass Environmental Stewardship Program! The next three Michigan Turfgrass Environmental Stewardship Program Seminar dates have been set. These are day-long seminars starting promptly at 8:30 a.m. and concluding around 3:00 p.m.

The schedule is as follows:

- **Fall:** November 6, 1998, Fox Hills, Plymouth, Michigan
- **Winter:** January 22, 1999, Holiday Inn South, Lansing, Michigan
- **Spring:** March 18, 1999, Treetops Sylvan Resort, Gaylord, Michigan

By attending one of these

seminars, you will receive program materials and become a Michigan Turfgrass Environmental Stewardship Program participant. See the registration form included with this newsletter or to receive an additional registration form, please contact Debbie Swartz at Michigan State University, swartzd@pilot.msu.edu, or 517-353-3208.

El Nino

The 1998 summer season has certainly shown signs of the effects of El Nino. After a mild winter and an early start on summer, aquatic vegetation is growing rampant. The warm temperatures, and abundance of sunshine provide a perfect habitat for excessive weed and algae growth. Although there is not a whole lot that can be done about the weather, there are a few things that can be done to help minimize weed and algae growth in your lake or pond.

1. Use a phosphorous free fertilizer.
2. Use fertilizer sparingly.
3. Avoid over-watering, so as to

How many gorillas does it take to change a lightbulb?

— One. But it takes a lot of bulbs.

minimize runoff.

4. Do not feed the ducks and geese.
5. Avoid burning leaves near the shoreline.
6. Form a buffer-zone between the lawn and the shoreline.

Did you hear about the boy who slept with his head under his pillow?

— The tooth fairy stole all his teeth.

Welcome, New Members!

We would like to welcome the following new members to our organization!

Jeff Smith, Quail Ridge Golf Club, Assistant Golf Course Superintendent

Terry Scott, Sparta Moose #50, Golf Course Superintendent

Bob Volland, Indian Trails Golf Club, Golf Course Superintendent

Donovan Huisjen, Twin Lakes Golf Club, Assistant Golf Course Superintendent

Jim Hoekstra, Silver Lake Country Club, Golf Course Superintendent

Jay Eccleton, Travis Pointe Country Club, Assistant Golf Course Superintendent

Brian VanderPloeg, L.E. Kaufman, Maintenance Staff

Bryce Richard, St. Marlow Country Club, Assistant Golf Course Superintendent

Chad Johnson, The Meadows Golf Club, Golf Course Mechanic

Edward Simon, The Meadows Golf Club, Assistant Golf Course Superintendent

Humic Substances and Their Potential For Improving Turfgrass Growth

It has been recognized for centuries that soils containing ample organic matter are usually far more fertile than sandy soils. Organic matter can improve soil water holding capacity, cation exchange capacity, nutrient retention, soil microbial activity, and other properties. In recent years, scientists have begun to study specific components of soil organic matter to determine their influence on plant growth. In particular, much research has focused on evaluating the humic substances present in soil.

Humic substances can be defined as "naturally occurring, highly decomposed organic substances with very complex structures." They are derived from plant and animal residues and are usually dark in color. Humic substances can be divided into humic acids (HA), fulvic acids (FA), and humins based upon their solubility in acidic and basic solutions. Humic acid is produced by extracting an organic matter source with an acidic solution (pH=2.0); a fraction which is insoluble below pH 2.0 but soluble above is considered a humic acid. In order to produce a more desirable commercial product, HA can be treated with a basic compound to produce a soluble salt with a near neutral pH. This soluble salt is referred to as humate. It is also possible to mine naturally occurring soil deposits which contain a high percentage of HA or humate. HA and humates are the most commonly marketed types of humic substances currently available for use on turfgrass.

Because humic substances are essentially a component of organic matter, they can be found almost anywhere; in streams and lakes, and in virtually any soil which contains organic matter, animal, or plant residue. Some common sources of HA and humates are coal, Leonardite (a coal-like material), and peat.

It is important to keep in mind that humic substances are classified primarily according to their solubility, not upon chemical structure. In fact, it is sometimes said that if you can identify a particular compound's structure, it is not a humic substance. Thus, it is difficult, if not impossible, to make comparisons among products by examining labels. Two products

may contain identical amounts of humic or fulvic acid, but they may have come from completely different sources, and produce very different results when added to a turf area. Therefore, it is important to gain as much information about a specific product as you can before using it yourself. Good

sources of information include: independent research results from unbiased labs, university research, impressions from superintendents who have used a particular product, and small test plots on your own golf course.

Continued on page 5

To Core Aerify or Not: That Should Not Be a Question!

For many years, golf course superintendents have realized the benefits of annual core aeration. Also, they have seen the negative effects caused by skipping this tillage practice. Why is an annual aeration so important? One reason is that it helps alleviate soil compaction. In a home lawn situation this may not be very important, but there are many other reasons to aerate. Another is to increase soil porosity. Soil porosity has major effects on the health of a turfgrass plant. An ideal soil contains about 50% soil particles and 50% pore space (25% air and 25% water). If pore space is diminished, plant health is sacrificed.

Increased soil porosity provides many benefits. Runoff is reduced, in turn, increasing infiltration rates and water retention. Both of these decrease the frequency and amount of irrigation needed. Additionally, rooting depth is increased.

Other benefits gained from core aeration include increased rhizome and stolon production and disruption of any undesirable layering or thatch development. But one major benefit that is commonly overlooked is the reduction of certain diseases.

Diseases are commonly defined as any abnormal processes affecting the normal growth of a plant. This definition covers a broad range of topics. In Turf Pathology we concentrate mainly on diseases caused by biotic factors such as nematode, bacteria, viruses and — mostly — fungi. So how does core aeration relate to the development of diseases? This answer could probably be summed up in two words: "Plant Health." Core aeration removes an abnormal condition so the plant is able to grow properly.

It has been proven that core aeration can reduce the severity of root-infecting pathogens such as those that cause summer patch, necrotic ring spot, and take-all patch. But how about foliar diseases such as leaf spot? In 1997, a study was initiated to evaluate Wisconsin-grown sod blends/mixtures and how establishment method and annual aeration affects them.

In the first growing season, no disease activity was noticed, and the only major differences noticed were in rooting depth, with rooting depth being significantly increased in plots that were tilled to an eight-inch depth, over the plots that were not tilled. However, in the second year, an outbreak of melting-out occurred in the spring. When the severity of melting-out was rated, it was found that plots that received the annual aeration the previous fall had significantly reduced amounts of disease.

To hypothesize on the reason for this, it was probably the result of healthier plants. Even though the fungus does not directly infect the roots of the plants, and the roots are probably most benefited by core aeration, the overall health of the plant was increased. Additionally, unlike the first year, establishment method did not have a significant influence on the rooting depth; but the aeration did for the second year. So when you ask yourself this fall whether to aerify or not, just remember all the benefits you will gain by performing a simple task that will have so much impact on the health of your turf in the coming year.

By Jeffrey S. Gregos, University of Wisconsin, Department of Plant Pathology (reprinted from Michigan State Seed Company, Turf Talk)

Better Turf With Compost

Several superintendents in the Chicago area have been replacing their traditional sand/peat/seed mix with compost to repair divots. The time to germinate new grass in these required divots has been reported to be as little as one fifth the time required by the traditional mix.

There are several reasons that compost worked in this application, and these reasons apply equally to a number of other jobs around the well-maintained golf course. At the risk of telling many of you things you already know, we'll address a few of the reasons compost does good things for turf.

Soils consist of air, water, minerals and organic material. The mineral portion of soil is generally clay, silt, and sand or some combination of these. The organic portion, humus, consists of partially decomposed (composted) plant and other organic matter. Humus, which results from the slow decomposition of plant material on the ground, not only has had plenty of chance to pick up stray weed seeds, but it may support some plant pathogens. Commercially composted humus has been decomposed in very large windows that are held at over 140°F for two months or more and all weed seeds have been killed.

Compost consists of partially decomposed organic matter, and it is very similar to the organic matter found in soil; so from here on, "compost" may be read "humus." While the mineral portion of soil may vary widely in appearance and combustion by region and geological origin, the organic material, which results from decomposed plant and animal life, is similar nearly everywhere. Soils that are thought to be rich in topsoil generally contain 3 to 5 percent organic material. Stable compost ranges from 28 to 35 percent organic content.

Compost absorbs and holds large amounts of water very much like peat. Unlike peat, it doesn't become water-repellent when it dries. The water in compost is available, as needed, to the plants growing in it. Compost contains

nutrients and trace elements which are essential to healthy plant growth.

And compost contains life — bacteria and fungi which help maintain or restore a healthy balance of soil microbes. The proper balance of these organisms results in healthy plants which are more resistant to disease and insect damage than plants grown without compost. These microbes also support other beneficial life forms, such as earthworms. Together, they cause the soil to "clump" providing paths for air and water to circulate in the soil, improving percolation and infiltration, reducing compaction, and increasing resistance to erosion. Another valuable function of the microbial life in soil is the "tie-up" of excess nutrients. These are retained and then made available to plants, as required, in an easily usable form.

The organic portion of soil is not permanent. Even the relatively stable organic material, which remains after the composting process, slowly decomposes over time; and it decomposes more rapidly the more the soil is tilled. Once-fertile, overused soil which has become powdery or compacted and which will no longer produce plants acceptable quality has lost much of its organic component. Since it may take between 100 and 150 years, under ideal conditions, to create one inch of topsoil through the natural cycle of undisturbed plant growth and decay, the need to protect and systematically to restore organic material to heavily-cultivated soil is apparent.

The Chemical Solution — As soils have become less fertile through intensive use, chemical solutions have been increasingly used as a substitute for natural fertility. Because these chemicals make it possible to grow acceptable plants in poor soil, they have allowed such highly intensive use of soils that, in many cases, there is one-third or less of the original organic matter left. As a direct result:

- Because organic material retains excess nutrients, without organic matter, fertilizer which is not captured by root

systems soon after application leaches into ground water and nearby surface water, resulting in wasted fertilizer and significant environmental damage.

- As organic matter is used up, larger and larger applications of fertilizer are required to achieve the same results.

- Soils are much less resistant to erosion, and because of their dusty, hardpan consistency, water runs off the surface rather than into the soil.

- Drought resistance is materially reduced because the soil will not retain as much water from rainfall.

A Better Solution — Tests on golf courses and athletic fields show that the use of compost in establishing new turf growth helps increase the speed and total percentage germination of turf seed and increases the knitting of sod roots. Further, the resistance to heavy wear of turf grown in soil amended with compost, and the ability to recover from such use, improves significantly.

Similar experience by landscapers indicates that incorporating compost into beds before planting and the use of a soil/compost mixture for backfilling after planting shrubbery and trees, results in larger, healthier plants, lower plant mortality and materially reduced fertilizer requirement.

How To Use It — Here are some proven ways to use compost:

- To establish new seed: *Till 2" of compost to a depth of 5" and plant.*

- To establish new sod: *Spread 2" to 4" of compost on graded soil, disc in, rake smooth, and install sod.*

- To improve high stress areas: *Topdress with 1/2" compost twice a year.*

- Planting herbaceous ornamentals: *Till 2" compost into top 5" to 7" of bed.*

- To revive dry, brown rough: *Mix backfill with 10% to 30% compost.*

- On established turf: *Core aerate, topdress with 1/4" compost, and drag in. Recommended twice a year.*

by Peter Repenning
Green Cycle Incorporated
(reprinted from C.O.G.C.S.A.)

Michigan Turfgrass Environmental Stewardship Workshop

Please join us at one of the upcoming workshops and become a member of the *Michigan Turfgrass Environmental Stewardship Program*. We'll spend the day meeting with state and industry experts to discuss strategies to further protect and enhance golf course properties. You are encouraged to bring others from your course to discuss issues specific to your property and begin the stewardship process.

To attend, please fill out the registration form, enclose the proper amount, and return it to: Michigan State University, 584 Plant and Soil Sciences Building, East Lansing, Michigan 48824-1325, or FAX it to 517-355-0270. Contact Debbie Swartz at 517-353-3208 with questions about registration or the program.

MICHIGAN TURFGRASS ENVIRONMENTAL STEWARDSHIP WORKSHOP REGISTRATION FORM

Your name: _____

Others who will attend: _____

Golf course name and address: _____

Telephone: _____ FAX: _____

I/we will attend the seminar on:

- November 6, 1998, Fox Hills Country Club, Plymouth, Michigan
- January 22, 1999, Holiday Inn South, Lansing, Michigan
- March 18, 1999, Treetops Sylvan Resort, Gaylord, Michigan

Please identify your operation and registration fee:

One lunch is included in the registration fee. Additional lunches can be provided at \$15.00 per person.

- Resort or Private Club \$150.00
- Daily Fee Operation \$50.00 per 9 holes, \$150.00 maximum
- Municipal or Tax Funded Course \$75.00

Registration fee (must be submitted by Oct. 23, 1998 for Nov. 6 seminar) \$ _____

Number of additional lunches _____ X \$15.00 = \$ _____

Total amount enclosed \$ _____

Humic Substances, *continued*

The beneficial effects of humic substances on numerous plants have been well documented. Reported benefits on various crops have included: enhanced seed germination, increased root mass and root number, increased photosynthesis and chlorophyll concentration, increased yield, and improved nutrient uptake. There are several hypotheses as to how humic substance may function in plants to produce these changes. Some possible mechanisms indicated by past research included: enhanced absorption of mineral nutrients, reduction of soil levels of toxic elements, enhancement of soil microbial populations, increased photosynthesis and protein synthesis, increased plant hormone activity, and alteration of cell membranes resulting in improved transport of nutrients from the soil.

Even though several of the possible benefits of humic substances are associated with improved nutrition, it is important to note that humic substances themselves are not fertilizers and do not supply appreciable amounts of the major nutrients needed by turfgrasses. Table 1 shows an average nutrient content for some typical humic substances.

Table 1. Average chemical composition of selected humic substances. (from Steelink, 1985)

Element	Humic Acid (%)	Fulvic Acid (%)
Carbon	54-59	41-51
Hydrogen	3-6	4-7
Oxygen	33-38	40-50
Nitrogen	1-4	1-3
Sulfur	0-2	0-4

During recent years, many commercial products containing humic substances have been promoted for use on turfgrasses. While the positive effects of humic substances on cereal grasses and numerous other plants have been well documented, the growth response of turfgrasses has not been studied extensively. Thus, we have conducted research at North Carolina State University over the past three years to determine the potential of humic substance (including both HAs and humates) to influence creeping bentgrass rooting, photosynthesis, and nutrient uptake.

NCSU Research — Greenhouse and hydroponic studies were conducted to evaluate numerous products for their influence on the rooting, growth, and nutrient uptake of creeping bentgrass. In addition, the effect of these materials on photosynthesis was also studied. The

humic substances studied included two commercially available humates, one commercially available HA and three HAs extracted from soil, peat, or Leonardite. The materials were applied to 'Crenshaw' creeping bentgrass mown at 0.188" and maintained as putting green turf. Most materials were applied as foliar sprays at very low concentrations. The highest rate applied was 0.25 oz./sq. ft. in 5 gallons of water/1000 sq. ft.

Application of HA materials at 0.25 oz./1000 sq. ft. significantly increased root mass compared to untreated turf on almost every sampling date in greenhouse studies. The response to lower rates were not as conclusive, although the materials improved the amount of roots present, they did not affect root length. When granular humates were incorporated into the rootzone to a depth of four inches, the rooting effects were stronger than the effect of foliar sprays. Keep in mind that these results were from plants growing in sand or hydroponic solutions containing little or no native organic matter or humic substances. Rooting responses might be less evident on a putting green containing

Continued on page 6

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Classifieds

Used Equipment For Sale:

200 Lesco Bunker Rakes similar to accuforms, 4 Par Aide Cooler Stands Brown Paint, 18 Golf Course Benches Standard and Par Aide, call Al Bathum at 616-493-6410.

Turfgo Metermatic Topdresser Model F15A, self-propelled 5.5hp Honda engine, purchased in 1993; 100 hours on the machine, good condition, available for inspection. Asking \$2,000 or best offer. Call Kathy Antaya, The Meadows Golf Club at 616-895-1005.

Turfgo Mete-r-matic 3 Topdresser, purchased in 1994; with chevron belt and electric clutch actuator. As is, available for inspection. Asking \$2,000 or best offer. Call Kathy Antaya, The Meadows Golf Club at 616-895-1005.

1989 Ford F-150 Lariat XLT, 118,000 miles, 6 cylinder, 5-speed, engine runs great! Vehicle in excellent shape. AC, cruise control, tilt steering, intermittent wipers, AM/FM stereo, cap for box included. Asking \$4,000 or best offer. Call Kathy Antaya, The Meadows Golf Club at 616-895-1005.

Humic Substances, *continued*

significant organic matter or naturally occurring humic substances.

Photosynthesis is an important process in plants because it provides the plant with plant food (carbohydrates) for growth and recovery from stress or injury. Applying HAs at 0.25 oz./1000 sq. ft. increased photosynthesis compared to untreated turf on most dates when photosynthesis was measured. Even so, this did not translate to increased heat tolerance in our heat stress studies. In five different experiments evaluating nutrient uptake, application of humic substances generally had no effect on the nutrient content of nitrogen, potassium, and iron; increased the uptake of calcium and copper; and decreased the uptake of sulfur and manganese. Phosphorous uptake varied among experiments with HA application either increasing uptake or having no effect. Although we could consistently measure difference in tissue nutrient content due to humic substances, the differences were

normally small in fact, that it is doubtful that these produce differences in turfgrass quality in the field.

Conclusions — In our studies, we were often able to document positive effects of applying humic substances to creeping bentgrass turf. Although rooting, photosynthesis, and nutrient content were often improved by the application of humic substances; turfgrass growth and quality rarely differed from untreated turf. Even so, we remain open minded regarding the potential benefit of making supplemental applications of humic substances. Applying the materials to low fertility soils or newly seeded greens might be useful in some putting green situations. Also, given the very low application rates required, one might consider their use to be cost effective for the potentially improved rooting they might give during summer months.

*By Richard J. Cooper, Ph.D.
and Chunhua Lie, Ph.D.
(reprinted from C.O.G.C.S.A.)*



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