



# WESTERN VIEWS

July - August, 1998

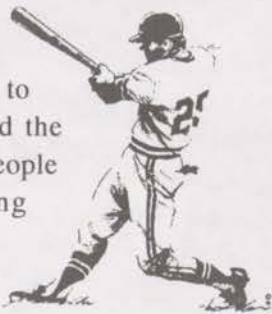
Official Publication of the West Michigan Golf Course Superintendents Association

## 1998 Meeting Schedule Western Michigan GCSA

September 21	Golf Day Cascade Hills CC
October 13 (Annual Meeting)	Wuskowhan Players Club
November 7	Fall Party Kent CC

## White Caps Game Well Attended

The White Caps game that was sponsored by Valley Turf was well attended and a lot of fun. It was a nice day weather wise and that helped. The White Caps ended up winning the first game of the double header and losing the second. The food was excellent and many members brought family and crew members to help enjoy it. Our thanks to Ron Brink and the Valley Turf people for sponsoring this event.



## SERIALS

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

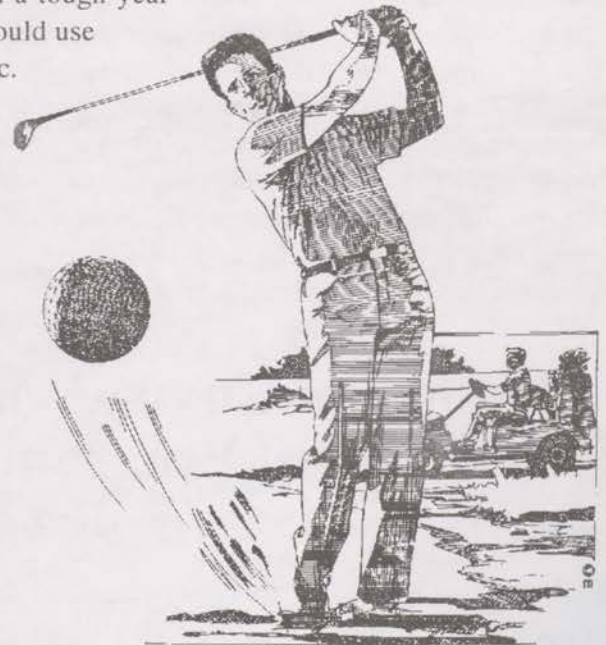
MICHIGAN STATE UNIVERSITY  
372 S. State St., S.E.  
Grand Rapids, MI 49546

## President's Message: *Good Times*

Let it snow, let it snow, let it snow... Happy September to you all! We made it. I didn't think this season would ever end. Now that it has, let's all go play golf at Golf Day!

Golf Day this year should be a great one at one of my favorite West Michigan courses, Cascade Hills Country Club. In fact, I think you should take some of your crew this year. It's been a tough year on them too. They and you could use a break from the aerating, etc. to boost morale. Your crew deserves a half day away. It's for a good cause and is tax deductible. (As far as I'm concerned, it is!) Call it research. You need to look at Al's new bunkers and his cutting edge maintenance! You can sell this idea. Hope to see you there!

Sincerely,  
Doug Boyle C.G.C.S.  
President



## Kalamazoo Meeting a Success

The golf course was in great shape, and the lunch was excellent also. The day was sunny to start and then the clouds rolled in, but that was nice because it cooled it off a bit. There were 72 people in attendance for golf and to listen to the talk by our National

Organizations Director, Jon Maddern. We would like to thank the members at Kalamazoo Country Club for having us, the staff for taking care of us, and Jon Maddern for informing us. Also, a special thanks to John Fulling, our host Superintendent.

## Aerification Time Again! \_\_\_\_\_

Aerification and the pros and cons of the cultural practice is a topic that comes to the forefront every year at this time. Even after many years of educating golfers I know of no other practice that is more questioned than this. It ranks only second behind putting green speed in areas of concern for many players. There are many that have come to realize the importance of this practice and fortunately these are usually the people on the Greens Committee and Board of Directors. Still it is an inconvenience and will sometimes be questioned to see if it may be skipped just this one year.

At Cascade Hills the last few years, we have been aerifying the greens the week before Labor Day. We have a One-Day Member Guest the week after Labor Day, and with the warm soil temperatures, the greens are usually healed within a week or less. Normally, the golfers in this event never even notice that aerification took place. We use a half-inch tine and remove the cores and fill the holes with sand. In contrast, we used to wait until later in

the month, and if the weather was cooler and the soil temperatures lower, it would take the rest of the fall to recover. Many good weeks of quality putting were screwed up due to the "let's wait until after the last tournament" mentality of aerification. There are a few other positive aspects of early aerification also. We have a larger crew earlier in the month than later. Normally, the chances of dry weather at the end of August are better than at the end of September. If you get an opportunity to convince your members or owners to give it a try, you may like the results. The golfers may be more satisfied also and, after all, that's who we want to keep happy.

As with any cultural activity, there will always be a down side. This year, temperatures in the mid-eighties kept us hopping. Fortunately, rain moved in that evening when we were done, and gave us a nice half inch to help wash the sand in. Great timing by the Superintendent, I guess.

*Al Bathum, C.G.C.S.*

## Michigan's Environmental Stewardship Program: *Is your course involved?* \_\_\_\_\_

Imagine an opportunity of working hand-in-hand with environmental governing agencies like the Department of Environmental Quality and the Department of Agriculture to ensure compliance of environmental regulations before violations occur. Wouldn't every Superintendent and golf course in Michigan benefit from that? Is your course involved?

The Michigan Turfgrass Environmental Stewardship Program was established this spring at Michigan

State University in cooperation with the Michigan Turfgrass Foundation and the Golf Association of Michigan along with many environmental advocacy groups. The program has four components to its mission: 1) to advance the environmental stewardship of Michigan's golf industry; 2) to protect water resources, enhance wildlife habitat and promote native vegetation on golf course properties; 3) to foster communication between Michigan's golf industry, state agencies,

*continued, page 3*

## New Bugs \_\_\_\_\_

There are two aquatic pests that can now be managed using their own natural enemies. How efficient and cost effective these processes are is still open to debate. One of the processes is for the control of purple loosestrife, an aggressive invader of North American water bodies.

This plant species, although beautiful, becomes the dominant vegetation once introduced, which reduces local bio-diversity, degrades habitat quality, impairs recreational use and impedes water flow. All conventional means of control have proven impractical for this pest, but now experts may have found a way insects can help.

Michigan State University and the DNR, among other groups, are funding a project to reestablish native species displaced by loosestrife. They hope to use *Hylobius transversovittatus* (a weevil that mines in the root tissue and eventually kills loosestrife) and two species of *Galerucella* (a beetle that feeds on the plant causing defoliation and prevention of seed production) to control this aquatic nuisance. Initial releases in 1994 have produced positive results. Results from a release in 1996 are not conclusive but are encouraging, in fact experts predict a 90 percent reduction in loosestrife populations once these insects are fully implemented.

A more familiar pest, Eurasian water milfoil may also be treatable with a native competitor. EnviroScience, Inc. has researched the effectiveness of using *E. lecontei*, a weevil which feeds exclusively on milfoil, to control the plant. Although sources say treatment can cost into the thousands of dollars per acre, each program and associated costs are customized based on the problem at hand. In addition, it may take one to three years before the milfoil exhibits any demise. Although the innovation has caused quite a buzz the practicality of these insect alternatives has yet to be determined.

*by Professional Lake Management*

## Stewardship Program, *continued*

environmental advocacy groups and MSU; and 4) to recognize and award environmental stewardship achievements.

The program has many practical applications for your course. At The Rock, I have been able to utilize the guidance of the Program on many issues. We have changed our fuel and fertilizer storage procedures, enhanced our environmental compliance by drafting checklists for employees to use in their daily work, and developed an environmentally safe mixing and loading pad for pesticides. The program can offer the same assistance to any course which joins the partnership.

On July 6th, Dearborn's Tournament Players Club was the first golf course in Michigan to be certified under the new program. The Stewardship Program received front page coverage recently in the *Detroit Free Press* and was heralded by Russell Harding, Director of Department of Environmental Quality, as the first of its kind in the nation.

Several golf courses in Northern Michigan have joined the partnership. They include: The Elks, Garland, Hidden Valley, The Natural, and The Rock. Training seminars will be offered at various times this winter. If you would like more information on the program, contact **Environmental Stewardship Program**, Michigan State University, 286 Plant & Soil Science Building, East Lansing, MI 48824-1325, or contact Debra Spakoff Swartz at (517) 353-3208 or Gregory Lyman at (517) 353-0860.

*By Craig Hoffman, Superintendent  
The Rock Championship Golf Course,  
Drummond Island  
(reprinted from N.M.T.M.A.)*

*Bumper sticker in the Ozarks:*

**IF YOU CAN READ THIS,  
YOU AIN'T FROM AROUND HERE.**

## K or Not To K

As turf managers, we are constantly bombarded with the need to apply Potassium to our turf. What is the right amount? Why does the plant need Potassium? What is the best form? When should I apply the Potassium?

These are all questions that we ask ourselves regularly. I do not think there is any one answer for each one of us. I think that each turf area is different and each course will respond differently. With a greater understanding of the role and fate of Potassium we apply, we can make better application timing and product decisions that will maximize our utilization of Potassium.

With this article I cannot and will not answer all these questions. I would like to give you background information that you can utilize to fine tune your turf's need for Potassium.

Potassium is the dominant intracellular action in both plants and animals. While it has long been known to be an essential element for plant growth, its exact mode of action has baffled scientists for years.

Among growth mechanisms and plant responses in which Potassium is believed to play a leading role are enzyme activity, photosynthesis respiration, carbohydrate production/translocation/transformation, nitrogen metabolism, protein synthesis, heat and drought resistance, winter hardiness, root density, and disease resistance.

Potassium's role in the plants is very important. The level of involvement in enzyme activity and production is very high. Many enzymes are influenced by its availability. Potassium (K) binds together carbon units produced in photosynthesis. This binding allows many compounds to be produced, which are very important in the plant's survival. Compounds such as: sugars, cellulose, lignin amino acids, and proteins, are the building blocks of the plant. Each of these will have a different effect on the plant,

but as a whole each is vital.

Potassium is concentrated in new growth, new leaves blades, and all meristematic regions of the plant. Much of the Potassium that is absorbed in the plant is ultimately removed through the mowing practices. Since Potassium is concentrated in the new shoot and leaves of the plant, when we mow and collect clippings we are removing large amounts of Potassium. This Potassium must be replaced in some way shape or form. This explains why most often soil tests on tees, greens and fairways (where clippings are removed) show the lowest Potassium levels. We also must remember that the younger plants will utilize more Potassium than older plants. Since plants move through life stages just as we do, we need to recognize these stages. They progress naturally from seedlings, to maturity, to seed production. When was the last time you think you let turfgrass plant go through its natural progression? Most finely maintained turf never moves much into the maturity stage.

The relationship of Nitrogen to Potassium has long been documented. The current trend is to supply N/K at a minimum of a 1:1 ratio. Since most of the Potassium that the plant can uptake is being done through mass flow, we need to time the application accordingly. Mass flow just means that as fertilizer is applied to the soil the concentration in the soil solution increases to a level higher than that inside the plant roots, and the nutrients move from areas of higher concentration. This moves the Potassium into the plant. This process should then help you time your Nitrogen and Potassium applications to increase the efficiency of the Potassium application. If Potassium is not supplied in sufficient quantities to balance the Nitrogen applications, problems can arise, such as:

- Top growth at the expense of root growth;

*Continued, page 4*

- Thinning of turf;
- Weed invasion;
- Winter tenderness;
- Disease susceptibility; and
- Decreased wear tolerance.

During periods of drought and high heat, the Potassium plays a very important role in the survival of your turf. This is especially true when the Potassium levels are low while you continue to feed Nitrogen. During these times, the plants tend to lose turgidity. This is due to the lack of supporting tissue, i.e. utilization of water. With the poor utilization of water, the stomata openings are sluggish to close, since there is not enough pressure to close the guard cells. When the Potassium levels are increased, the cells' plasma layers tend to swell, due to Potassium being a monovalent ion that easily penetrates the cells, causing the swelling. This increases the water utilization and decreases the water loss due to evapotranspiration.

The fall application of Potassium can have an effect on the winter hardiness of the plant. Potassium is involved with the storage of manufactured foods, and the translocation of it from the leaves to the root and back again. Plants store these reserve compounds as sugars and related carbohydrates in the roots, rhizomes, stolons and lower leaves. During the winter and spring, the plant will use more food than it produces and it can draw on the reserve food sources to survive. The more extensive the roots system, the more area there is to store these reserve carbohydrates.

Turf that is low in Potassium will have soft and easily crushable leaves, enabling disease pathogens easier entry into the plant. If the Potassium levels are low the sugars and other compounds will not translocate throughout the plant and can accumulate in the leaves, providing pathogens a more than adequate food supply during their development stage. The increase of the Potassium will increase the production of polysaccharides that will

help the plant fight infection. This increased Potassium will also move the excess sugars and carbohydrates out of the leaves and down to feed the roots and other supporting tissues.

Now that we have looked at Potassium in the plant, let me remind you of one very important concept for your greens' Potassium program. In this modern age where we build or topdress most greens out of some percentage of high sand, we need to understand the soil chemistry in relationship to Potassium. For many years, we would apply much of our Potassium in the fall and in higher rates, feeling we could feed off it the following year. With the advent of these high sand content greens we need to change our practices. Potassium is very much tied to the Calcium (Ca) and Magnesium (Mg; not to be confused with Manganese) levels in the soil. The Ca/Mg ratio should be 3:1 to 4:1. If you look at your most recent soil test result and compare your base saturation ratios of these two nutrients, you will find them to be 7:1 and higher. On most sand-based greens, the base saturation level of Ca will be between 10-13%. As we look at these values, remember we most consider this fact: these values show us what percentage of

the available sites are taken up with these two actions. On average, this leaves 5% or less of the total sites available for the other actions, Potassium, Zinc, Manganese, Copper, and Iron. While thinking about this, what do you suppose the fate of the Sulfate of Potash is when it goes into soil solution and is done balancing concentration gradients? You're right, much of it leaches down below the root zone and exits the system through your drain tiles. So, when you are applying Potassium to sand-based greens, you will have to adjust your practices. This will also account for the reasons you hear many superintendents on sand-based greens complain they cannot raise the soil test levels of their Potassium.

This has been a very brief review of the Potassium involvement in your turf plant. Much of this information is nothing new, but as spring rushes to summer and summer to fall, we tend to get caught up in the day-to-day activities of grooming your courses. We need to step back and look at our Potassium fertilization schedule. Maybe we should refine the timing and increase our efficiency!

*By Bruce Schweiger, O.M. Scotts  
Executive Territory Manager  
(reprinted from C.O.G.C.S.A.)*

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## Managing Earthworm Problems in Turfgrass

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Earthworms have been called the "intestines of the earth" because of their importance in breaking down plant litter, recycling nutrients, and enriching the topsoil. **Generally, you'll have a much healthier turfgrass where earthworms are abundant.** Their burrowing reduces soil compaction and improves air and water infiltration. Earthworm tunnels may account for two-thirds of the total pore space in soils. Earthworms enrich the soil with their fecal matter, called

castings. Their feeding breaks down thatch while mixing topsoil into the thatch layer, enhancing its suitability for turfgrass growth. Thus, earthworms perform a function much like mechanical topdressing. Their activity encourages microbes that further decompose thatch and enhance soil fertility. **Conservations of earthworms is important in lawns and other turf sites where thatch is a concern.**

*Continued, page 5*

But on golf fairways, an abundance of earthworms can be too much of a good thing. Mud mounds abound where the earthworms have pushed up casting through the close-mowed grass. Golf carts and mower tires compact these mounds, smothering patches of grass. Golfers' drives may stop short on worm-softened fairways, and golf balls may be muddied where they land. Mower blades are dulled, and mowers return to the Operations Center caked with mud.

Over the past decade, my research team ran several multi-year field tests to evaluate the effects of turfgrass pesticides on earthworms. My original intent was to help turf managers to avoid killing earthworms, but I've since learned that there are two sides to this issue. Indeed, most of the interest in our earthworms research has been from golf superintendents who were more concerned with

suppressing earthworms. Here are some options for managing this problem:

Strictly speaking, turf managers in the United States cannot apply pesticides for earthworm control because no chemicals are labeled for such use. **However, several products will kill a portion of the earthworms as a non-target effect when they are applied for control, insects or disease listed on their labels.**

According to our research, the insecticides **bendiocarb** (Turcam®), **carbaryl** (Sevin®), **ethoprop** (Mocap®), or **fonofos** (Crusade®), are toxin to earthworms. Any of these products, applied at rates labeled for grub control and watered in (1/2 to 1 inch, or 1.25 to 2.5 cm, of irrigation), generally will give an 85 to 95% reduction of earthworms. The fungicide thiophanate-methyl (Cleary's 3336®) provides similar suppression. The impact is greatest if the application

occurs when the soil is moist and the earthworms are active near the surface. One application often will reduce the casting activity for two months or longer, not from residual toxicity, but because the earthworms are slow to reproduce or recolonize in treated areas.

In England, carbaryl (Twister®), and the fungicides carbendazim (Turfelrar®), and gamma HCH and thiophanate-methyl (CastAway Plus®) are registered for "control of earthworm casts." These products are not labeled for worm control in the United States. Availability and registration of products in other countries varies.

Most earthworms species are intolerant of acidic soils. Application of aluminum sulfate or sulfur to lower the soil pH to 5.8 or less may reduce their population.

*by Daniel A. Potter  
(reprinted from C.O.G.C.S.A.)*

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1999



## 1999 ESA Call For Entries

In 1998, 33 GCSAA members were recognized with Environmental Steward Awards (ESAs). In 1999, such recognition could go to you.

For the seventh year, ESAs will be presented to GCSAA members around the world for their commitment to environmental stewardship efforts on the golf course. The awards are sponsored by Novartis Turf & Ornamental Products, Rain Bird, Textron Turf Care And Specialty Products with Cushman, Jacobsen, Ransomes and Ryan brands, and Pursell Technologies Inc.

New in 1999 is the feature of a standardized application form, evaluation in six specific categories, the prohibition of supporting documentation (photos, videos, etc.), awards made by affiliated chapter instead of region and the ineligibility of previous national winners. These changes were made to ensure equality in the application/judging process and are further explained in the application.

Applications are available in the August issue of Golf Course Management, on the GCSAA Web site ([www.gcsaa.org](http://www.gcsaa.org)) for printing out or submitting electronically and from affiliated chapter presidents and each of the participating sponsors. Entries will be due to GCSAA on or before October 30, and winners will be notified in late December.

Since 1993, participating sponsors of the ESAs have donated more than \$100,000 to The GCSAA Foundation, and more than 180 golf course superintendents have been recognized with ESAs.

**Did you hear about the airplane that crashed into the cemetery in Poland?**

*—So far they've recovered 10,000 bodies.*



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