



CHIPS & PUTTS

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SOME ECOLOGICAL PRINCIPLES OF TURFGRASS MANAGEMENT

By D. B. White

It is often useful to take a non-traditional view of our turf situations. A new perspective often results in some new ideas. My objective is to apply ecological principles to turf management that may give some insights into why things happen in the turfgrass community. I've added a few principles to my list and hope they are useful to you as guideposts in examining problems and developing programs.

The first principle is really my definition of Turf Management.

(#1) "Turf management is the management of competition between desirable (turfgrasses, trees, etc.) and undesirable (weeds, etc.) vegetation."

This says we manage our turf to favor the plants we want, while penalizing the plants we don't want. Mowing, for instance, favors turfgrasses while penalizing young woody plants and most course weeds that can't tolerate decapitation.

The other principles are not definitions and are described below.

(#2) "All plants are different in response to the major growth factors (light, water, nutrients, air) and mowing."

The differences allow us the opportunity to manage the competition. Another example with mowing is that most turfgrasses respond to regular mowing in a way that increases the population of tillers. The turf becomes denser, capturing more light and crowding out or not allowing other plants to become established.

(#3) "There is an optimum set of conditions when considering the major growth factors under which any plant type will be most productive and competitive."

If we can discern the optimum level for light, water, nutrients, soil, air, mowing, etc., for the plants we desire and maintain these conditions, then our turf will always be functioning at the best level of quality. An important note here is that optimum is not meant to be maximum. A maximum condition can only be maintained briefly and then a recovery period is required to bring things back to a sustainable

condition (which some might call normal). It is something like running as fast as you can for as long as you can. The longer you run, the longer it takes to recover and catch your breath. Optimum means the best or most favorable condition for continued reproducible performance. The lesson for us is that if we drive our turf as hard as it can go (say by mowing as close as possible), it will sooner or later fail and the harder it has been driven (the closer it has been mowed), the longer it will take to recover.

(#4) "There are limits of tolerance related to conditions under which turf can grow."

Shade and non-shade tolerant grasses offer an example. There is a minimum amount of light under which "Baron" Kentucky bluegrass can maintain competitive growth. If the minimum is exceeded, "Baron" will not be able to compete with, say "Glade" which utilizes light more efficiently and tolerates lower light levels. Another example is that elite type Kentucky bluegrasses tolerate a lower mowing height than common Kentucky bluegrasses. Lower the height of cut and you eliminate the "Elite" types and end up with poa annua or bentgrass.

(#5) "There are interactions between

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- A Synopsis -April Meeting
- An Environmental Hero



President's Message.....

We kicked off our season with our first meeting at Silver Creek C.C. Tony Grieco, CGCS, had the course looking great, only to have it beat up by 40-plus "golfers". The PTGA wants to thank the management for allowing us to utilize their facilities and Tony for a fine job in preparation.

I am sorry to announce that Tom Wilchak resigned from the Board of Directors last month. Tom served on the Board since October 1996. He was currently Golf Chairman and Vice President. I respect his personal reasons for leaving and would welcome him back on the Board any time. Thanks, Tom, for your time and contributions to the Association. I hope to see you soon at one of our meetings.

I called GCSAA Chapter Relations about the vacant position of Vice President. They responded: "The position should be filled by a person currently on the Board by the President or the Executive Committee." This does not go against the GCSAA by-laws or the by-laws of the PTGA. I called Gene Huelster of Pocono Farms C.C., and he accepted the position of Vice President for the rest of the term. This leaves a directorship position open. I will have appointed someone (John Downer) by the time this is printed and that person will fill that position until elections at our annual meeting in October.

There are more happenings! Come out to a few meetings and check things out.

Jack Bird



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From the Editor's Desk.....

Good Press, Bad Press?

Lately in the local Wilkes-Barre/Scranton area, newspapers have run feature stories on local golf courses. GOOD PRESS? Maybe. The gist of the articles was on the demise of greens at various golf courses because of last winter's ice damage. Two local superintendents were interviewed on what had occurred to cause the damage, etc. GOOD PRESS, but the press dwelled more on what had happened, rather than what is necessary to repair the damage and get the greens back in playing condition, BAD PRESS. In instances, other than the two superintendents; interviews, the information came from either the golf pro or general manager who collectively have no clue as to what really happened, or didn't happen, and what it is going to take (and how long) to regain playing conditions.

Who is at fault? Maybe we as an Association or the Superintendent individually. How much public relations do we do collectively with the local press, specifically the sports editor, as he/she comes to the course to cover local events. Probably none! Why? Because we probably don't even know the sports/golf editor on a personal basis. This Association is actively addressing this situation by inviting the golf editor to our monthly meetings in the area in which their paper is published. We, as individuals, should do our part and get to know these people on a personal basis and open lines of communication. Good press can become bad press and visa versa.

When did you last hug a sports editor?

Jim MacLaren



1999 MEETING SITES

June 22, 1999	C. C. at Woodloch Springs Mark Eisele
July 20, 1999	Skytop Lodge Tom Williams
August 16, 1999	Pocono Farms C.C. (Clam Bake) Gene Huelster
September 21, 1999 (changed)	Eagle Rock Resort Doug Witcraft
October 19, 1999	Bethlehem Golf Club Tom Wilchak

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Mark is single, likes fishing, hunting, golf,
and visiting Civil War Battlefields.

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A SYNOPSIS OF The April Meeting at Silver Creek Country Club

A good time was had by all in attendance at our April Meeting at Silver Creek Country Club. Tony Grieco, CGCS, gave us a rare treat and allowed us to play the "Hill Nine", part of the original 18 holes. The course, as usual, was in impeccable condition, attesting to the fact that Tony is one of the top twenty golf course superintendents in the Lehigh Valley.

Many thanks to the Silver Creek C.C. membership for availing their course to our use and to Mr. Jay Gallo and his staff for the excellent and courteous service.

The educational portion on "Lyme Disease" was excellent, with many questions being offered by the membership.

GOLF WINNERS Of the Best Two Ball of Four (Full Handicap)

Congratulations to:

1st	2nd	3rd
Tony Stranzl	Ron Garrison (Footsie)	Charlie McGill
Steve Stranzl	John Chassard	John Doyle
Rich Pany	Darrin Batisky	Mark Oesterling
Tom Drayer	Gene Huelster	Mark Reed

WHOOOPS!



A mishap occurred during the golf portion of the meeting. Apparently one of our esteemed members didn't propel his ball in either the proper direction or the proper distance to his satisfaction, so he applied a "footsie" to the windshield of the cart. He will reimburse Silver Creek for its replacement!

*Whether you THINK you can or
THINK you can't - you're right.*



Jim MacLaren
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(Continued from page 1)

growth factors and we must realize that when we change one condition we change them all.”

An example might be if we increase irrigation, we increase leaching potential (interaction of water with nutrients) and decrease air in the soil (interaction with oxygen and soil) and can change pH, etc. The more we understand interaction the easier it will be to manage turfgrasses.

(#6) “There is an accumulation effect associated with constant or regular treatment applications.”

If we constantly mow elite Kentucky bluegrasses at the normal height for “Common” bluegrasses, the effect will likely be to accumulate excessive organic matter, thatch. If we continually apply lime when it is not needed, it will accumulate a higher pH which may lead to reduced availability of some nutrients. If we regularly mow a putting green at the lower limit of tolerance, the effect will likely be to accumulate a continuing reduction in not only top growth, but also root growth and consequently accumulate an increased susceptibility to drought and wear damage.

(#7) “One shot treatments do not accumulate effects, but tend to move things off center only briefly. Usually the tendency is for the situation to return to the original condition.”

It is comforting to remember that nature is forgiving in many ways (just don’t make the same mistake twice) and grass grows in spite of us! Application of this principle allows us, for example, to mow shorter than is desired occasionally, say for overseeding, without doing a great deal of lasting damage. Conversely, we must realize that in order to really change things we usually need to establish a program for continuing application of the change factor.

(#8) “When things are not going right, an effective strategy is to identify the factor or condition furthest from the optimum and correct it first.”

This is a very important principle because it adds incentive to learn the others and occasionally allows us to perform seemingly magical things. The reason is that all factors interact and when the furthest from the optimum is corrected, it usually interacts to shift responses to all the other factors closer to the optimum.

There are several more principles that are applicable to turf management situations. Maybe the best one to end up with is

(#9) “If things are working well, don’t ‘fix’ them.”

TURF AN ENVIRONMENTAL HERO!

The more than 25 million acres of lawns in the United States provide environmental benefits such as:

- ⇒ OXYGEN PRODUCTION. 625 square feet of lawn provides enough oxygen for for one person for an entire day.
- ⇒ TEMPERATURE MODIFICATION. On a block of eight average homes, front lawns have the cooling effect of 70 tons of air-conditioning.
- ⇒ ALLERGY CONTROL. Turf controls dust, in addition to pollen from plants that can cause serious health problems for some individuals.
- ⇒ POLLUTANT ABSORPTION. Turfgrass absorbs gaseous pollutants such as carbon dioxide and sulfur dioxide, converting them to oxygen.
- ⇒ PARTICULATE ENTRAPMENT. Turfgrasses trap an estimated 12 million tons of dust and dirt released annually into the atmosphere.
- ⇒ FIRE RETARDATION. Grass around buildings helps retard the spread of fire.
- ⇒ WATER QUALITY. Reducing runoff, turfgrass filters the water that helps to recharge groundwater supplies. Because of its filtering capability, turf has been used for years between agricultural fields as a buffer to prevent pesticide runoff.

According to EPA’s publication *Healthy Lawn, Healthy Environment*:

“Healthy grass provides feeding ground for birds, who find it a rich source of insects, worms and other food. Thick grass prevents soil erosion, filters contaminants from ground water, and absorbs many types of airborne pollutants, like dust and soot. Grass is also highly efficient at converting carbon dioxide to oxygen, a process that helps clean the air.”



Diary of a Greenskeeper



WEDNESDAY

Slept late, went in at 5:30. Changed cups, 18 greens hit 14 rocks, no record, but close. Thirteen green has a disease that looks like vomit, on closer inspection, it is vomit – what a relief. You can hose off vomit. Birds working on greens, how many cutworms does it take to fill up a crow? I think their mother was raped by a rooster the way they scratch with their black toenails and dig with their beaks. The member who owns an ice cream plant told me we need more sand in the traps. I told him his maple walnut needs more nuts! He said, "Times are tough." I agree. Went to the clubhouse for a cup of coffee and the manager asked me if I knew anything about the septic backing up? Left without getting coffee. Fairly normal afternoon except we are down to one Cushman. Are flat tires contagious? Home for dinner at the right time for a change. No one is home. Note says to heat up a TV

dinner. Go down to The Olde Eagle Inn and wash down a steak with a half dozen hinnies. Finish mowing rough. Wife mad. Don't care. Fall asleep on the floor after watching the *Sands of Iwo Jima*. Love Big Duke!

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- ⇒ Save energy. One large tree has the same cooling effect as 15 room-size air-conditioners. Mature trees shading homes cut energy costs by 18-50%.
- ⇒ Increase property value. Trees can add up to 20% to the value of a home. However, without proper maintenance, the value of trees declines. Timely use of specialty pesticides controls disease and insect damage.
- ⇒ Clean the air. One acre of trees removes 5 tons of carbon dioxide from the air annually. According to the American Forestry Association, on average, mature tree absorbs 26 pounds of carbon dioxide per year. The same tree cleans up pollution created by a car driven 11,300 miles, as well as gives off enough oxygen for a family of four to breath for a year.



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THE pH FACTOR:

A Basic Understanding of the Effects of pH in Spray Tank Solutions

The pH of water that is available is something which you have no control. You can be blessed with a source that runs 6.5-7.0, or can be cursed with a water that runs as high as 8-9, or even 10. This article is confined to the effect of pH of water on various pesticides in the spray tank and the measures one can take to partially compensate for some of the deleterious effects of alkaline waters.

In general the loss in effectiveness is due to hydrolysis; and the rate hydrolysis is determined by: (1) the pH; (2) the chemistry of the pesticide; (3) time of exposure in the spray tank; (4) temperature of the water in the spray tank.

(1) pH is measured in logarithmic units, in other words a pH of 8 is ten times more alkaline than a pH of 7 and a pH of 9 is 100 times more alkaline than 7. The hydrolysis rate of an alkaline sensitive chemical will increase by a factor of ten for every pH unit.

(2) The chemistry of the pesticide is an extremely important factor. Most chemicals will undergo alkaline hydrolysis. On the other hand, some are acid sensitive and will undergo acid hydrolysis.

(3) Time of exposure in an alkaline mediums also a critical factor. What comes out of the spray tank during the first hour of spraying could be more effective than what comes out during the last hour of spraying.

(4) An increase of temperature of 10 degrees C (18 degrees F) will double the speed of decomposition. The sun's rays beating down on a spray tank will have some effect on the rate of hydrolysis, and so will constant agitation tend to warm up the spray mixture.

Various pesticide manufactures have supplied data showing the effect of pH on the half life of their pesticides and is reported on their label.

Surprisingly, the insecticides Dursban and Diazinon, although affected adversely by pH, still have extremely long half-lives at high pH's. This is not consistent with what the golf course superintendent is finding in the field. Perhaps resistant strains of insects play a more important part than pH.

On the other hand, products like Sevin, Malathion, and Dylox (Proxol) are severely affected by high pH's. Adjusting the water in the spray tank would most assuredly improve their effectiveness.

Aside from pesticides, there are tremendous amounts of iron, magnesium, and other trace elements being used as adjuvants in spray mixtures. With the exception of born, which is not truly metallic, all the metallic salts will undergo hydrolysis at a pH of above 7 and end up as hydroxides and oxides which are totally inactive. The classic example is ferrous sulfate which hydrolyzes rapidly and will end up as inactive iron oxide rust, sometimes in sufficient amount to

clog the sprayers.

Although when these metals are chelated, they become immune to hydrolysis and are totally and completely available to the plant.

Correcting the pH of the water in the spray tank is possible and achievable, but should not be done haphazardly. The accurate way to monitor pH is with a pH meter. But these meters can go haywire unless they are checked and standardized on a daily basis. The use of pH paper is a cruder way of checking pH and will not be accurate within 0.5. But since a pH between 6.5 and 7.0 is an acceptable range, one can get by with pH paper.

The one acid that is readily available to everyone is vinegar. It should be carefully added to the water in the spray tank in small increments, checking with the pH paper. If too much vinegar is added and the pH drops below 6.5, the pH can be brought back with household ammonia. Always adjust the pH of the water before adding the chemicals to the spray tank.

There is an important caution that you must be made aware of: the effect on postemergent herbicides. Specifically, herbicides such as 2, 4-D, MCPP, MCPA, and Dicamba are water insoluble acids that have been put in solution with amines. These solutions are always alkaline, and if they are acidified these herbicides drop out as water insoluble gums, which will foul up the spray tanks. They are best sprayed with the alkaline water. Never adjust the pH of herbicidal sprays! However, methylarsonates such as MSMA and DSMA are unaffected by pH.

To conclude, remember that unless you carefully and painstakingly adjust the pH of the water within the narrow limit of between 6.5 - 7.0, it would be better for you to accept the alkalinity of your water and do nothing at all.



RAFFLE TICKETS

Once again it is time to raise money for our scholarship fund. Every member of the PTGA has received raffle tickets which should be sold by clam bake time. The prizes consist of golf equipment and free golf for a foursome.

The drawing will take place at the Clam Bake on July 17 at Pocono Farms C.C. You may either bring the ticket stubs and money to the clam bake or mail them to me. Any unsold tickets must be returned to me. My address is:

Address to send Raffle money, stubs, unsold tickets:

Jason Barndt
P O. Box 1484
Albrightsville, PA 18210



POCONO ROUNDUP

NEWS AND VIEWS FROM THE POCONO
TURFGRASS ASSOCIATION

REPORT CARD FOR THE 1998 *CHIPS & PUTTS* FROM THE GCSAA



Out of a possible 85 points for a perfect score, the 1998 editions of our *Chips & Putts* fared with a 58. Not too bad, considering we were penalized for things like:

- √ Lack of contributing articles by superintendents
- √ Balance of original material and pre-printed material
- √ Placement/use of photos

But *Chips & Putts* got an above average grade for "Overall Design."

Reminder: Monies for the sale of Raffle Tickets MUST be in by the Clam Bake at Pocono Farms on July 17!

NEW MEMBERS

The Pocono Turfgrass Association would like to welcome the following new members:



John D. Fowler, Novartis, Class AF
Desri L. Pursell, Sweeney Seed Company, Class AF
Jeff F. Siglin, Skytop Lodge, Class B
Edward R. Zimmerman, Lesco, Inc., Class AF

Roster Books

The Roster Books have been mailed out. Anyone who did not receive one, please call Melinda and let her know (570-388-2889). If you should like an extra book, the cost is \$5.00.



Congratulations!

Todd Ahner, Olde Homestead Golf Club, and his wife Jamie are the proud parents of a bouncing baby girl, Ashlyn Shey, who was born on May 26. Todd and Jamie now have two girls.



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