



CHIPS & PUTTS

OFFICIAL PUBLICATION OF THE
POCONO TURFGRASS ASSOCIATION

Founded in
1936

VOL. 6, NO. 5

JULY 2000

The Mysterious Role and Composition of Humus

Understanding the nature and value of humus is a worthy enterprise for turf grass managers because of the tremendous capacity of humus to increase the health of the turfgrass root system. In order to gain such an understanding, it is necessary to delve into the processes that turn organic matter such as compost into humus.

Humus is a substance with incredible properties. It can be the product of microbial decomposition of plant or animal tissue. Its exact composition can be very different depending on the nature of the starting material, the decomposing organisms, and the microclimate. We can compost animal manure or brewery sludge mixed with plant materials such as sawdust or leaves to yield partially decomposed material that is excellent for encouraging plant growth. Recommendations for the use of compost in fruit, vegetable, and ornamental gardens are nearly universal since organic matter is such an important soil amendment. Composts provide nutrients, increase the ability of the soil to retain nutrients rather than allowing them to leach away, and help to suppress disease-causing bacteria and fungi. These advantages are due to the living organisms of the compost as well as the partially degraded materials that provide the bulk. When compost is further degraded by microorganisms in the soil, it becomes humus, a gel-like mixture of soil minerals, remnants of the microbes, and organic matter.

Steps in Decomposition of Plant Debris

When a plant cell dies, the membrane surrounding the cell breaks apart, and the liquid or gel-like cell contents or cytoplasm leaks out. The cell membrane and cytoplasm are the most nutritious components of the cell, containing sugars, proteins, and oils. High in nitrogen and available energy, these cell components are easily digested by animals or microorganisms.

The next step in decay is much slower - the breakdown of the bulky cell wall structure of plant leaves, stems, and roots. Plant cells are supported by a cellulose wall that is like a rigid

basket. Fibrous plant tissues may in addition contain thick cell walls reinforced with glue-like substances, lignin, cutin, waxes, or oils, all of which are resistant to moisture. Woody roots and stems have such secondary walls resistant to degradation by most organisms. However, even tree roots and trunks can be degraded by certain fungi that secrete special digestive enzymes. These biological catalysts breakdown the secondary walls, releasing sugars and other nutrients to the decomposing organism, and turn the wood to a soft, dark peaty material.

The organic matter that naturally falls to the ground includes hardwood leaves, conifer needles, tree branches, and the flowers, fruits, seeds, stems, and leaves of grasses and other annual and perennial plants. The time required for decay at the soil surface depends on the type of plant material, the temperature, whether it is buried, moist, and in an oxygen-rich environment, and whether the appropriate decomposing microorganisms are present.

Grass tissue resists degradation because of sturdy cellulose cell walls, lignins and waxes which humans can't digest, but ruminants can. Humans are limited in their ability to digest plant material by the enzymes secreted into the stomach, the acid conditions tolerated, and by the activities of the beneficial bacterial population that resides there. Wheat bran is considered roughage in our diet because it is high in cellulose and passes through the human system only partially digested. Ruminants like cows, goats, and deer can digest hay because of

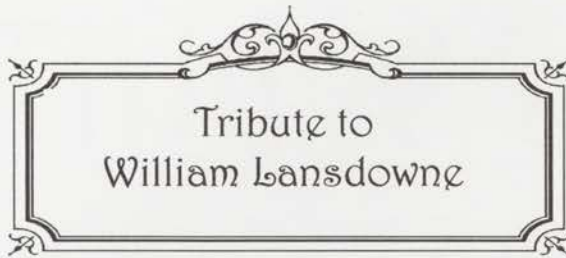
(Continued on page 3)

In this issue.....

- *Links for Life*
- *A Testimonial*
- *"What is Golf?"*



In lieu of the President's Message and the Editor's Desk:



On Thursday, July 13, 2000, the members of The Country Club of Scranton lost one of their most trusted and valuable employees, **Bill Lansdowne**. Since 1968, Bill served as Golf Course Superintendent with class, dedication and immense pride in the course he once described as "a beautiful old girl". Bill was the consummate professional and gentleman who lived for his work. Most of us are unaware that Bill never went on vacation or even took a day off.

Bill nurtured our facility for 32 years, creating course conditions widely accepted as the finest in our area. His expertise and tireless work ethic were primarily responsible for establishing the Club as the pre-eminent regional golf facility and subsequently propelled it to statewide prominence. This is evidenced by our being selected to host the Pennsylvania Open in 1992, the Pennsylvania State Men's Amateur Championship in 1997, the Pennsylvania State Women's Amateur Championship in 1999, and the upcoming Pennsylvania State Men's Amateur again in 2002.

The Golf Association of Philadelphia Magazine has described The Country Club of Scranton as "the jewel of the northeast". This is certainly a tribute to golf course conditions established and maintained by Bill Lansdowne and his loyal staff. His legacy to our Club was on full display, in all its glory, during the recent Donald T. Nolan Memorial Member-Guest Tournament. He certainly would have been proud.

Bill's expertise in agronomy and turf management was affirmed in 1973 when, as a member of the first class of candidates, he gained certification by the Golf Course Superintendent's Association of America, a significant and widely coveted distinction in the industry. For years Bill has been the dean of local course superintendents. He was a past president of the Pennsylvania Turf Grass Association.

Although soft spoken, Bill enjoyed the utmost respect and loyalty from his staff and fellow department heads. He was completely trusted and admired by our members, past and present, who were fortunate enough to get to know him. He was a true friend to this Club.

Our sincere condolences go out to Bill's wife, Joan, and his sons, Bill Jr., Jeff and Reis.

*The above tribute to **Bill Lansdowne** appeared in The Country Club of Scranton's July newsletter.*



OFFICERS & DIRECTORS

2000

PRESIDENT

Ron Garrison, CGCS
Fox Hill Country Club

VICE PRESIDENT

Gene Huelster
Pocono Farms Country Club

SECRETARY/TREASURER

Tony Grieco, CGCS
Silver Creek Country Club

DIRECTORS

Jason J. Barndt
Berwick Golf Club

Darrin M. Batsky
Glen Oak Country Club

Jim MacLaren
Turf Partners, Inc.

Mark Eisele
Country Club at Woodloch Springs

John Downer
Elkview Country Club

Gary Phillips
Racquetees Sports Complex

CHIPS & PUTTS STAFF

EDITOR

Darrin Batsky

Managing Editor,

Melinda Wisnosky
R.R. 1, Box 219
Harding, PA 19643
570-388-2889
Fax: 570-388-2167

EDITORIAL COMMITTEE

Jim MacLaren
Tony Grieco, CGCS



(Continued from page 1)

a specialized four-part stomach, with a microbial fermentation cycle followed by repeated chewing. Specialized beneficial bacteria thrive on chewed hay in the moist, warm culture of the stomach. The physical breakdown from chewing the cud combines with activity of the microbial enzymes. In this way, chemical cleavage releases soluble nutrients, valuable food substances both to the microbes and to the animal whose stomach is the incubator. The solids that pass through the gut are still rich in nutrients and living microbes.

The decomposition of grass tissue can take place in soils when given the right conditions:

air, moisture, high nitrogen-to-carbon ratio, and an active microbial population. This soil process is important to the degradation of thatch, the layer of dead grass stems and lower leaves that forms a barrier between the roots and the green portion of the grass plant. A small amount of thatch is healthy, acting to shade the roots and cushion physical impacts. A thick layer of thatch can make chemical treatments less effective, absorbing pesticides and blocking dispersal into the root zone.

Contributions of Microbes and Earthworms


The decomposers in the soil contribute to the bulk of the organic matter. Earthworms take in soil mixed with dead and living organisms and pass it through their gut, depositing castings rich in digested substances and microbes. Their physical remains add to the soil organic matter. There are groups of fungi like the water molds that have cell walls made of cellulose or other unique variations of sugar chains bonded together. Bacteria and some fungi have cell walls made of chitin, a molecular structure similar in composition to the exoskeleton of insects and crayfish. Each type of cell wall can be broken down by certain decomposers that have the genetic ability to make the needed enzymes for release of the component molecules. This release provides nutrition for the decomposer or microbe, and left behind are undigested organic matter, secreted gluey substances, and dead microbial cells.

What is so Special About Humus?

Humus is the end product of ordinary decomposition. It is a mucous-like mixture of the most resistant tissues of plants and animals, and the dead cells of soil bacteria and fungi. Humus is a remarkable material, with a cation exchange capacity (CEC) several times that of clay particles. This means that humus can hold positively charged molecules (called cations), then release them later as the components in the soil water solution change. A soil with high CEC will retain nutrients on clay or humus, then release the nutrients, making them available to roots as the plant roots or microbes release hydrogen ions into the soil water. In acid soil conditions there is a high concentration of hydrogen ions, and cations such as calcium, potassium, or magnesium are exchanged more rapidly into the soil water. Humus and partially degraded organic matter retain water in a surface film that is still available to plant root hairs after the free water has drained away from the root zone. Humus will continue to break down very slowly over time, as weather conditions, nutrient availability, and microbial populations change. Tropical soils contain very little humus and organic matter since they are rapidly degraded and disappear completely at high temperatures.

The microbes of the soil make nutrients available to roots by

(Continued on page 4)

 **NOVARTIS**

John D. Fowler
Turf and Ornamental
Sr. Marketing Specialist

Novartis Crop Protection, Inc.
325 Mill Pond Lane
Oxford, PA 19363
www.cp.novartis.com
Tel 610 998 2896
Fax 800 334 9481 Ext. 5899
Fax 610 998 2897
john.fowler@cp.novartis.com

GOLF CARS INC.

LEASING • SALES • SERVICE

PAUL SZYMANSKI SALES

4180 SKYRON DRIVE
BUCKINGHAM, PA 18912-0247

215-340-0880 OFFICE • 215-340-1634 FAX

TURF 1



ELECTRIC | GASOLINE

TURF 2



ELECTRIC | GASOLINE

TURF 272



GASOLINE

CARRYALL TURF

Club Car

play to win

PTC

PHILADELPHIA TURF COMPANY
4049 LANDISVILLE ROAD, BOX 865
DOYLESTOWN, PA 18901-0865
OFFICE 215-345-7200 FAX 215-345-8132

MATTHEW W. BROWN
Commercial Products
Voice Mail
215-340-5401

GEORGE J. SKAWSKI, JR.
Irrigation Products
Voice Mail
215-340-5450

TORO



(Continued from page 3)

degrading complex substances into simpler molecules. But how can humus change the texture of soil? This occurs because a natural byproduct of microbial decomposition is a glue-like substance, a sticky material used by fungi and bacteria to remain fixed to the surface of the material on which they grow or divide. These glues called glycoproteins become part of the colloid mixture that is humus, causing aggregates or larger particles to form in the soil. This results in a coarser texture if the soil is composed of clay, silt, or loam, a better soil for plants that is more friable, looser, and drains more freely. The microscopic root hairs will grow into the humus and organic matter, taking advantage of the added nutrients, beneficial rhizosphere microorganisms, and water retained by the humus. These root hairs have much more surface area than larger roots, such as those that grow rapidly into wet sand. Greater surface area leads to significantly more absorption of water and nutrients. A larger root system can support healthier top growth. In addition, the humus will retain water to provide a safety net in dry conditions.

Why Increase the Humus?

Why should a turfgrass manager try to increase the humus in the root zone? For three reasons: 1) humus increases nutrient availability for microbes and plants, 2) humus retains nutrients, reducing leaching, and, 3) humus improves soil texture through aggregation, increasing drainage.

The sources of organic matter in turfgrass soils are the original amendments at time of installation, grass clippings, thatch, and dead roots. In addition, soil insects, algae, earthworms, bacteria, fungi, and nematodes add substantially to the organic matter of the turfgrass root zone. Topdressing with compost is an excellent way to increase the organic matter, fertility, and microbial activity. Additionally, compost will reduce the problems of thatch layers, will help to suppress disease organisms, and over the long term will increase humus, reduce leaching, and improve the resilience of the turfgrass in times of stress.

When a nitrogen-rich compost is topdressed over turfgrass, the soil microbes will have a new source of nutrition. They will use the nitrogen from the breakdown of compost to increase the degradation of dead roots and thatch. The complex substances in the compost will favor a new balance of microbes with the specific ability to degrade the kind of organic matter present. There will be an increase in humus in the soil, leading to better nutrient-holding capacity (due to the increased cation exchange capacity and reduced leaching). Increased microbial activity will also speed up the degradation of pesticides in the soil. The high activity of microbes will tend to reduce the incidence and severity of turfgrass root rot diseases. After about three years of topdressing with compost, the improvement in the stand and resistance to drought and disease will be obvious. The health of the turfgrass and increased root surface area will reduce the necessity for pesticide applications. Understanding the microbial processes leading to decomposition of organic matter, including thatch and dead roots, will help move the turfgrass manager further along the integrated pest management continuum. Healthy turfgrass requires less maintenance and sets up the scenario for a more profitable season.

Jana Lamboy, IPM Specialist; Cornell University Turfgrass Team,
Cornell University Turfgrass Times, Summer 1999, Volume Ten,
Number Two

CENTURY RAIN AID

Featuring



Rotors • Valves • Central Control Systems
800-347-4272

EarthWorks™

Natural Organic Products

Joel Simmons

P.O. Box 278K
6574 S. Delaware Drive
Martins Creek, PA 18063

www.soilfirst.com
Fax: 610-250-7840
Phone: 610-250-9560

800-732-TURF



So you want to upgrade existing
sprinklers but don't want to dig up
your old TORO® or Rain Bird®
sprinkler bodies... **Bear**

offers
the solution...

RG6700 Series

...for less

RG7800 Series

Starting at
\$62.50

1-800-922-0717

Conversion Kits designed to upgrade existing
TORO® or Rain Bird® sprinklers while still
providing the superior performance you would
expect from...

BEAR

IRRIGATION

www.callaquarius.com



LINKS FOR LIFE

Saving Lives on the Golf Course

Saving Lives on the Golf Course

Heart disease is the leading cause of death in the U.S. today, and it can strike any one, anywhere, any time – even on the golf course.

Walking the course has many health benefits, including reducing the risk of heart attack. But when a medical emergency does happen, a course can be a difficult place for emergency medical teams to reach quickly, and in cases of cardiac arrest, every minute can mean the difference between life and death.

Fortunately, there are things golf courses can do to help improve the chances someone will survive a cardiac arrest on the course. The most important is to provide access to a critical life-saving therapy known as defibrillation.

Conquering Sudden Cardiac Arrest

Sudden Cardiac Arrest (SCA) strikes more than 250,000 people every year in the U.S. Only about 5 percent of them survive. The American Heart Association estimates that thousands of additional lives could be saved if defibrillation therapy could be administered in adequate time.

The healthy heart is a pump that beats in a methodic, efficient rhythm to send blood throughout the body. In the most common form of SCA, an electrical malfunction causes the heart to quiver ineffectively. Blood flow to the brain and other vital organs stops. A person in cardiac arrest quickly loses consciousness and the ability to breathe, and will die within minutes unless treatment is administered.

That treatment is known as defibrillation - a controlled electrical shock to the heart that can allow a normal heart rhythm to regain control.

Until recently, defibrillation could only be administered by highly trained medical personnel. But a generation of devices known as automated external defibrillators (AEDs) makes it possible for laypersons - such as course marshals or security staff - to administer this life-saving therapy.

How AEDs Work

An automated external defibrillator (AED) is a safe, portable device equipped with a computer that can tell when a patient's heart is not beating properly. With voice prompts and screen messages, the device is designed to lead anyone with minimal training through a short series of steps, quickly arriving at a decision by the machine to shock or not.

What About Liability?

AEDs are highly accurate and will not shock a person who



isn't in cardiac arrest. With training and proper use, there is virtually no risk to either the AED user or the cardiac arrest victim.

To encourage the widespread use of AEDs, more than 40 states, including Pennsylvania, have passed "Good Samaritan" laws to limit the liability of AED users who are properly trained.

How You Can Help Save Lives

It's easier than you think to make a difference that could save a life:

- If you think someone is having a medical emergency, call 9-1-1 or your local emergency number as soon as possible.
- Learn cardiopulmonary resuscitation (CPR). The American Heart Association's four-hour Heartsaver AED course covers both CPR and how to use an AED. Heartsaver FACTS is an eight-hour course that also includes basic first aid.
- Find out what kind of safety equipment is available on your course. In addition to AEDs, some golf courses have installed radio transmitters or other communication devices at the far holes, to make it easier to call for help.

For more information, or to find out how easily you can implement an AED program, contact Michelle Markley at the American Heart Association at: **(717) 975-4800, X130 or mmarkley@heart.org**.

"Links for Life" a project of Golf Digest, the American Heart Association and Medtronic Physio-Control - is a public education and awareness campaign aimed at improving survival from sudden cardiac arrest and heart attack on golf courses and in other public places.

Other organizations participating in "Links for Life" include the National Golf Course Owners Association, Club Managers Association, Golf Course Superintendents Association and the National Safety Council.

Editor's Note: Many golf courses are buying these units. At Glen Oak CC we purchased two. One is kept in the pro shop and the other in the restaurant. They include training materials and seem to be relatively easy to use. The cost of each unit that we purchased was \$3,200.





A Letter from Walter Whitney

to the Board of Directors

July 13, 2000

Dear Sirs:

We're enclosing this check of \$100.00 toward the Pocono Turfgrass Association Scholarship Fund. Also enclosed is the card with the poem I composed while relaxing and watching the golf channel. I hope you enjoy it.

Sincerely,

Walter Whitney
(former greenskeeper)

What is Golf

By Walt Whitney

Golf is more than just hitting a round ball into a round hole.

It is walking out onto a green carpet,
looking down a fairway
Seeing a row of trees
of difference shapes and sizes
in different shades and beautiful colors
giving you fresh clean air to breathe
and looking at streams and ponds
that reflect the landscape around you.

Golf is more than just hitting a round ball into a round hole.

It is making new friendships.
It is giving respect.
It is receiving respect.
It is learning patience.
And it is experiencing accomplishments.

This is golf.



Nothing Runs Like A Deere



WILLIAM SABLICH

FINCH TURF EQUIPMENT, INC.
404 Elm Avenue
North Wales, PA 19454

(215) 661-0390
(800) 875-TURF
FAX: (215) 661-9161
www.finchinc.com

Lee A. Kozsey
Senior Territory Sales Lead

Zeneca Professional Products
3710 Amherst Court
Bethlehem, PA 18020-1356

Telephone (610) 861-8174
Mobile (610) 730-9185
Fax (610) 882-9358
E-mail lee.kozsey@AGNA.Zeneca.com
Voice Mail (888) 875-9990, X0163

ZENECA

A business unit of ZENECA Inc.

Steve Chirip
Territory Manager



EGYPT FARMS, INC.

8754 Country Place Drive
Tobyhanna, Pennsylvania 18466

Phone: 410-335-3700
Mobile/Pager 443-255-6471
Home/Office 570-894-3133

VERT-DRAIN DEALERS
& CONTRACTORS

717-288-9004
800-554-4863
FAX 717-288-9023

E & M GOLF SUPPLY Co.

A DIVISION OF H.V. INC.
202 WOODWARD HILL RD., EDWARDSVILLE, PA 18704

SPECIALIST IN DEEPTINE AERATION

Stephen Michael



31 Hill Street, P.O. Box 507
Wilkes-Barre, PA 18703-0507

570-822-8181
FAX: 570-823-3579

- Layout and Design
- Typesetting
- Mac/IBM desktop publishing interface
- Laser color separations
- Scitex® electronic photo retouching
- Full electronic prepress services
- Foil stamping, embossing
- Complete bindery including saddlestitch and perfect binding

It's every player's responsibility...

- Repair ball marks
- Replace or fill divots
- Rake bunkers



A message from your golf course superintendent and GCSAA



**A TESTIMONIAL TO
WILLIAM LANSDOWNE, CGCS
From: FRAN DAVITT, III**

As everyone probably knows, on July 13, 2000, everyone who is connected with golf course management lost a very important individual to our profession, William Lansdowne, CGCS. I hope everyone in the Association had the great privilege of knowing Bill.

I have known Bill for thirty years and thought the world of him. He was my dad's best friend. They attended Rutgers University together and were extremely close friends. After my father passed away, Bill was my mentor and advisor. He offered me an assistant's position when I graduated from Penn State, which I was honored to accept. Working with Bill and my father was very important and proved a valuable lesson beyond belief. I'm sure anyone who worked with Bill would say the same. His work ethic and extreme dedication provided his assistants throughout his tenure with knowledge unsurpassed by any book. His golf course was in the best condition of any in the area, consistently, and could have hosted a major with little or no effort.

Bill was extremely important to me, and I considered him father-like. He will be missed by many in our profession. I will truly miss our weekly calls where we would discuss many topics both professional and personal.

I hope all members sent their prayers out to the Lansdowne family, and please send cards to:

Joan Lansdowne
2312 Milwaukee Road
Clarks Summit, PA 18411

Premium sod for golf courses

Chip Presendofer	A T Sales Associates, Ltd. 1011 Church Road Oreland, PA 19075
	Tel 215-886-6011 Fax 215-886-1203 Pager 800-983-3430

Office & Home Phone White Haven 570-443-9596 Fax 570-443-9590	Top Dressing Bunker Sand Infield Mix
Blue Ridge Peat Farms, Inc. White Haven, PA 18661-9674	
Potting Soil Soil Mixes	GENE EVANS, Owner Professional Engineer



Shaun M. Barry
Sales Representative
CHIPCO® Professional Products

Aventis Environmental Science
1133 Rt. #27
Somerset, NJ 08873
Tel. (732) 846-8173
Fax (732) 846-8113
e-mail: Shaun.Barry@aventis.com



NORTHERN NURSERIES, INC.
Professional Tree Products Division



RT 115, Sullivan Trail
Wind Gap, PA 18091
Phone: (610) 863-6006
Fax: (610) 863-6384

DAN FICK
SALES REPRESENTATIVE

Home Phone/Fax:
(610) 562-6812
Pager: (610) 791-8336

Ed Zimmerman
Market Sales Representative



LESCO, Inc.
1121 Lehigh Street
Allentown, PA
18103

800.321.5325 V.M. 6284
610.432.2919 Office



POCONO ROUNDUP

NEWS AND VIEWS FROM THE POCONO TURFGRASS ASSOCIATION

USGA Senior Open Championship 2000 Edition at the Old Course at SAUCON VALLEY C.C.

Penn State Field Days

If you were not in attendance at Field Days, you missed a GREAT opportunity to observe the performance of products that we now have in our arsenal and the promise of new products that are in the pipeline.

The pig roast was a great event with many families showing up for the event. Rumor has it that the "Family" type atmosphere might be a thing of the future.

Grey Leaf Spot

Even though the disease erupted its ugly head back in July, it didn't take much of a toll so far. Maybe because Superintendents were better protected by using the tools now available for forecasting. The largest damage has been observed in the first cut of rough that maybe was not protected.

Congratulations and a job well done to Terry Laurent, CGCS, and his able staff on a SUPER job preparing and maintaining the course for this prestigious event. We must mention his most capable Superintendents and their Assistants:

- ⇒ Al Seigfreid, Superintendent & Neil McNutt, Assistant at the Old Course
- ⇒ Glen Brader & Greg Wister at the Grace Course
- ⇒ Bob Stiffler, Superintendent, & his Assistant, Bob Wolverton

Everyone who was there, or watched on television, can attest to the conditions. Even the more "astute" TV commentators had nothing but praise. Word has it that it will return in 2008.



POCONO TURFGRASS ASSOCIATION
 c/o MELINDA WISNOSKY
 R.R. 1, BOX 219
 HARDING, PA 18643

POSTAGE

NAME & ADDRESS

ADDRESS CORRECTION REQUESTED.