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Circle No. 135 on Reader Inquiry Card

Rebuilding the soil

Compost could be the answer to creating a nutrient-rich soil that can promote healthy, tolerant turfgrass stands.



Dark brown compost helps mums 'pop' at Sea World

■ Scoop the dark material up in your hands. It's barely moist to the touch with an earthy but not unpleasant odor.

If it's good compost, if it comes from a pile that's weed free, that's been mixed and

turned properly. If it hasn't been hurried and it's been allowed to run its course biologically and chemically, it will crumble and dissolve through your fingers like something precious.

Thirty percent sand, 40 percent soil, 30 percent organic matter for best growth.



Commercial compost manufacturers are convinced—with a little hope and trepidation thrown in—that the green industry will use more of their product. They believe that demand for compost should increase substantially for its use in "recipe" (blended) topsoils, and as an amendment for poorer-quality native soils.

Implications for the green industry are exciting. Compost promises to be the next major source of organic material that landscape managers use to modify or improve soils for turfgrass, ornamentals, planting beds.

Thomas Taylor, landscape manager at the University of Delaware in Wilmington, has been

using compost for years, primarily for construction and reconstruction of turfgrass areas, particularly athletic fields. He estimates the university has purchased almost 5,000 cubic yards of compost.

"Using compost is an inexpensive and ecologically sound procedure to improve native soils for the specific purposes of growing turf and other plants," Taylor says.

Taylor rebuilt the university's football field by removing the top eight inches of the field's existing silt/loam soil and replacing it with a native loamy/sand soil amended with compost.

In a separate project, he says 400 yards of compost incorporated into the native soil of the school's lacrosse field now allow that field to be aerated with normal aeration equipment. Aeration is sometimes impossible in two nearby practice fields where soils haven't been improved with compost.

"The incorporation of compost as a soil amendment is not a complete answer, but it has proven its worth to us," says Taylor.

Why use it?—Taylor says more landscape managers will use compost if it's:

- ✓inexpensive,
- ✓easily available in bulk quantity,
- ✓of uniform quality and texture,
- ✓deliverable with minimum notice to reduce on site storage and odors.

"The biggest reason we use it is because of the color," adds Rob McCartney, horticulturist and grounds manager at Sea World, Aurora, Ohio. The lasting, dark brown product he receives—darker than coffee grounds—helps Sea World's floral displays "pop out" at visitors, he explains.

In addition to serving as a substitute for mulch, McCartney uses compost as a soil amendment in Sea World's planting beds. His Sea World crew must plant thousands of flowers in just weeks. Sometimes the crew just has time to "drill holes in the soil and slip them in." McCartney says that compost-condi-

Compost as a soil amendment in Sea World's planting beds. Sea World crews must plant thousands of flowers in just weeks.



University of Delaware field has native loamy/sand soil amended with compost.

tioned soil allows them to do this more efficiently. Also, Sea World uses compost as a topdressing for its many "pocket" lawns, again with visible improvement to these areas.

McCartney admits he puts much trust in a product many landscape professionals are just learning about. Park visitors, however, tell him that what he and the his crew are doing with compost is appreciated. Visitor surveys, he says, put Sea World's landscape at the top of the list of attractions they like most.

What can it do?—Soil scientist Dr. Ed McCoy of Ohio State University describes organic material, including compost, as the "buffer" in the soil. He says it buffers the soil:

- from excessive drought;
- microbiologically, increasing the soil's microbial diversity;
- chemically, by providing a cation exchange capacity.

The bigger question, asks McCoy, is how much organic matter is needed to provide soil characteristics leading to optimum turfgrass growth?

"There is a point of diminishing return as you add more and more peat to the system to essentially where you have a full organic soil, and you really don't get much additional benefit," he says.

McCoy suggests a ratio of about 30 percent sand, 40 percent soil and 30 percent organic matter (5-10% by weight) for best turfgrass growth. Either peat or compost can be used as the soil's organic component, although the two materials differ. Compost generally differs from peat, says McCoy, in that it:

- is more aromatic,
- is finer textured,
- has a lower cation exchange capacity because it has a lower organic content,
- tends to have higher soluble salts, and
- tends to have a higher pH.

"If you put compost as an amend-

ment into a clay soil, you can improve aeration and soil structure. You get better turfgrass rooting, better turf growth," adds Dr. Peter Landschoot, Penn State University, who spoke about compost at the Ohio Turfgrass Conference this past July.

What's available?—Landschoot, who has been studying composts for several years, has reviewed products made from landscape debris, a paper mill, brewery wastes, mushroom production, sewage sludge, and, even, poultry manure.

"Composts vary tremendously from source to source either in their chemical or physical properties," he says. For instance, of the composts he's tested, organic matter content ranged from 15 to 80 percent, moisture content from 20 to 60 percent, and pH from 6.0 to 9.0. Also, some composts have different carbon/nitrogen ratios and levels of soluble salts.

In his Penn State experiments, workers bulldozed five inches of topsoil from plots, leaving a "lousy subsoil" to plant turfgrass. The researchers then worked and rototilled the soil and added different compost products, a two-inch layer (about 6 cu.yds./1,000 sq.ft.) of each to predetermined plots, leaving some without compost as checks. They planted all plots with Baron Kentucky bluegrass.

"All of these products improved turf cover 32 days after seeding over the controls," reports Landschoot, although there were "some pretty significant differences" among products in the rate of establishment.

—Ron Hall



Landscape manager Thomas Taylor uses compost to amend soils in the athletic fields at the University of Delaware.



Rob McCartney, horticulturist at Sea World, Aurora, Ohio, says rich, dark color of compost gives the theme park's floral displays more sparkle.

LM REPORTS

Spring is for lawn dethatching

Whichever your budget permits, a dethatcher is an important tool. You can't meet spring without one.

■ It's the landscape and lawn care industry's equivalent to "a fresh coat of paint," or "spring cleaning."

It's the one industry activity that signals, more than any other, the coming of a new growing season.

Dethatching: a spring ritual that guarantees you another chance to start over.

"Upon this green canvas you will paint your masterpiece."

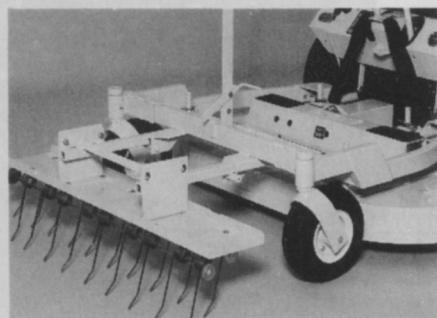
And whether your budget allows you to buy a unit dedicated exclusively to dethatching, or a trailer unit or an attachment, if you don't have a dethatcher, you can't clear away the dead grass and stems and leaves and whatever else has built up in the turf since November.

Here's a rundown of the dethatchers available for 1994, from companies that responded to our requests for information. Included are two liquid products, which depend on microbial action to eliminate thatch.

Want more info? Just circle the appropriate number on the reply card.

—Terry McIver

Walker's spring tine dethatcher attachment removes and collects lawn thatch in one pass. Thatch is collected by the Walker GHS vacuum. (#320)



Gandy's dethatcher deck is 540-pto driven from tractors 18 hp and higher. (#312)



Ransomes America Corporation's Ren-O-Thin features include four interchangeable reels for dethatching, thinning and vertical cutting. (#317)

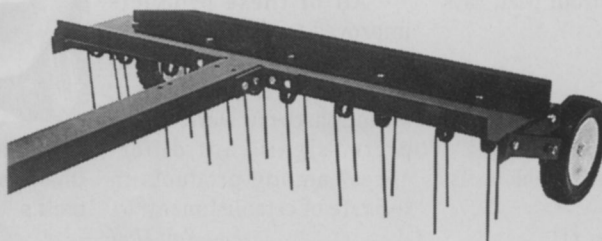
The Parker Power Thatcher cuts a full 19-inch swath through built up thatch. Three reel attachments to choose from: tine, knife and flail. (#316)



The Jacobsen Aero King 1321 not only dethatches, it is also a seeder and verti-cutter. (#313)



Precision Products makes a variety of heavy duty trailer dethatchers. Shown is Model TT-400. It's 40 inches wide, with adjustable spring steel tines. The unit weighs 36 lbs. (#323)



Dethatching equipment for 1994

Company	Product	Features
Fuerst Bros. Circle No. 311	Flexible tine harrow	Prepares seedbeds, breaks up aeration cores and helps work seed into the soil. Prepare fine seedbeds quickly and easily with this flat, pull-behind harrow. Smooth out sharp edges of roughgrading prior to seeding or placing sod. Covers seed and firms soil to improve germination.
Gandy Co. Circle No. 312	PTO units	New options for its 48-inch, 3-pt. hitch dethatcher/overseeder: the deck has 8-inch saw-tooth blades on 2-inch centers; seed can be placed alongside disc openers, which can be angled to achieve width of slit desired; or, a seed shoe assembly channels seeds directly into the turf.
Jacobsen Circle No. 313	Aero King 1321	Also a seeder and verti-cutter; front-mounted verticut blades allow the operator to verticut and seed at once. Verticutting, seeding or thatching can be performed singly; 13-hp Honda engine.
F. D. Kees Mfg. Circle No. 314	Power rake	Dethatcher is easily converted to Power Slice vertical cut aerator. Standard features: 5 hp Briggs & Stratton IC engine, Kevlar corded drive belt, 28 steel fingers to remove thatch or 20 steel blades that slice, thin and aerate turf.
Lesco Circle No. 315	Dethatcher	A durable 5-hp Briggs & Stratton industrial/commercial engine drives the blade shaft through two cast iron pulleys and a heavy-duty B-section V-Belt; 16 heat-treated high-carbon steel, double-tipped blades; unit weighs 107 lbs; width is 30-inches.
Mathews Co. Circle No. 316	Lawn Genie	Pick-up mowers mow, thatch, sweep and mulch lawn large areas of turf. Unit verticuts, cleans and picks up debris in one pass; vacuum action lifts clippings, leaves, twigs, pine needles, and thatch into an all metal hopper.
Parker Sweeper Co. Circle No. 317	Thatch O-Matic	Power rakes are build for a wide range of lawn care applications. 5 hp Briggs & Stratton engine with recoil starter; handle mounted idler clutch and throttle control; easy height adjustment features .
Ransomes America Circle No. 318	Ryan Ren-O-Thin IV	For a variety of turf duties. Four interchangeable reels, for dethatching, thinning and vertical cutting. Reverse handlebars to break up aeration cores. Spring-loaded clutch control
Salsco Circle No. 319	Seeder/dethatcher	The Model 360 Operates on 4-wheel drive and is powered by an 8-hp Honda engine. The seed hopper holds 25 lbs. of seed. In the seeder mode, with the hopper connected, the 380 seeder/dethatcher is capable of seeding 22,500 sq. ft. per hour. One lever lowers cutters, sets cutter depth, activates cutter.
Turfco Circle No. 320	Slice-N-Rake	A power rake and dethatcher that features fixed blades that rotate in the reverse as the unit moves forward. According to Turfco, this rotation allows the blades to enter the thatch like a hook and pull it up and out of the turf. Light alloy deck for easy loading. Powered by a 5 hp Briggs and Stratton engine. Quick depth of cut adjustment.
Walker Manufacturing Circle No. 321	Tine attachment	Spring tine dethatcher attachment removes and collects lawn thatch in one pass. Thatch is collected by the Walker GHS vacuum. The dethatching unit attaches easily onto the 36- or 42-inch mower deck without fasteners.
Aabaco Industries Circle No. 322	Luma-dethatch	Accelerates thatch decomposition. A powerful collection of bacteria strains aggressively attack thatch and convert it into humus;
Envirogenesis Circle No. 323	Thatch biodigest	Naturally-occurring microorganisms decompose thatch and restore the natural balance of water, air soil and nutrients, resulting in a strong and healthy root system; increases disease resistance.

Source: LM phone/mail survey, January, 1994

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Speaking of the driver, the W4 Gas also makes things easier there, too. The cab is easy to get into, spacious and comfortable once you're in. (It'll even seat three if necessary.) It's easy to drive, even for inexperienced drivers.

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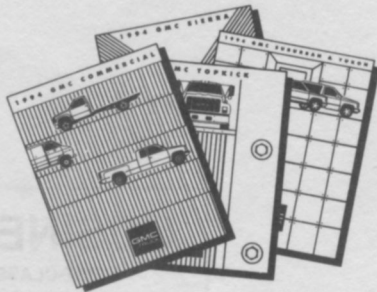
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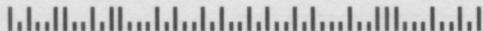


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Mulching mowers: saving the environment?

Critics of mulching mowers have been too harsh, says this University of Georgia expert. They are here to stay—with good reason.

■ Does the ultimate mulching mower exist? Probably not at this time, according to Dr. Bob Black, extension specialist in consumer horticulture for the University of Florida.

"But mulching mowers are here to stay," Black told an audience at the Florida Turfgrass Conference. "We need to educate the customer as to their use."

According to Black, the advantages of returning clippings to the lawn include:

1) Landfills no longer accept yard waste. Studies have shown that ½ acre of maintained grass yields 465 bushels of clippings per year.

Other possible solutions to the yard waste/landfill problem might be using slower-growing grasses, having less grass in the design, backyard composting, and using mulches. However, Black says, "returning the clippings to the

lawn is the best solution."

2) Returning clippings saves time, money, energy, fertilizer and water. A study in Texas showed that returning clippings cuts the average mowing time by 38 percent. It saves money spent on fertilizer, plastic bags and hauling of clippings. It saves physical and chemical energy, and can save "as much as two pounds of fertilizer per 1000 square feet per year," Black notes. Clippings also provide a shading medium so the turf uses less water.

Types of mowers—The two types of mulching mowers are multi-use (convertible) and dedicated.

Consumer Reports magazine found mulching-only mowers were better than convertible. Bolens 8628, TroyBilt 8628R, John Deere Tricycler and Honda were the best one-inch units; Toro Recycler, Honda and Rally convertible models were best two-inch.

Conversion kits include:

- discharge chute or plug plate
- special mulching blades
- belts and fans that chip and broadcast the clippings
- a deflector (Toro only)

Questions—Here are some common concerns with using mulching mowers, and their answers, as provided by Black:



Mulching mowers have been the subject of many mowing trials.

- Will they promote disease? A Texas A&M study showed not.
- Will they promote weeds? Yes.
- Will they promote thatch? No, according to a University of Illinois study.
- Will they increase mowing frequency? No.
- Can you mow wet grass? No.
- Do you have to mow slower? Yes.
- Do you have to adjust your fertilizer program? A University of Illinois study showed that turf quality is better at low N levels.

Tips—Black told the audience that these rules should be followed when using mulching mowers:

- 1) Keep blades sharp.
- 2) Cut off no more than one inch of leaf blade.
- 3) Don't mow wet turf.
- 4) Buy a high-quality machine.

"Are mulching mowers a salvation or a curse?" Black concluded. "Neither. But they give the industry an opportunity to provide quality lawn care while saving energy and protecting the environment."

—Jerry Roche



Mulchers come with a variety of decks.

Description of mulching mowers

BOLENS	BUNTON (ELIMINATOR)	EXCEL	GARDENWAY/ BOLENS	TORO RECYCLER	VERSADECK BY BOBCAT
donut-shaped deck; blade has several cutting angles; two-step blade has short cutting edge down low and longer edge ½ to 1 inch above first edge	three distinct cutting chambers, six-edged fanlike blades	"post-processor" system of high-speed chopping wheels in discharge chutes	"post-processor" system of high-speed chopping wheels in discharge chutes	deflectors that guide clippings back into blade and into turf	three two-stepped blades

Source: Dr. Bob Black

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The athletic field manager's challenge: smaller budget, same results.

SHOCKING FUTURE:

athletic field use up, budgets down

Due to many changes—both good and bad—today's sports turf manager has to budget wiser, work smarter and communicate better.

■ It's the best and worst of times for today's athletic turf manager, as declining enrollment at colleges and universities results in smaller or frozen maintenance budgets.

The good news is that sports participation by more students and developments in turf-seed, fertilizers, chemicals and equipment are moving forward at full speed. Artificial turf is also losing ground in baseball and football applications. It's just not safe.

Additionally, the NCAA has ruled that colleges must allow women's sports equal access to finances, for development of scholarship programs.

"We're going to see a tremendous growth, institutionally, in field hockey, soccer and softball, and it's going to drive to some extent the way we plan the economics," says Tim Bowyer, a consultant with STN Sports, Inc. According to Bowyer, and other athletic turf specialists, athletic field use will increase but there will be less dollars to maintain those fields, apart from the capital required to build them.

In both good times and bad, the athletic field manager faces one constant: the turf. Your budget may shrink, your crew may be cut, your game schedule may grow; but the fields have to look good—and play safe—every day of the week.

Renovation in the '90s—Economics makes renovation or replacement decisions especially tricky.

"No one plans to fail," says Bowyer, "but we often fail to plan.

"You've got to organize your thoughts," advises Bowyer, "and consider what you need. You must have a detailed plan, drawn to scale, that includes location of irrigation systems, outlets, water discharges and underground wires and pipes.

"We also want safety first," says Bowyer, in addition to an aesthetically pleasing field appearance.

Ithaca's ideas—A roundtable discussion during the most recent New York State Turfgrass Association's annual meeting in Rochester, N.Y. addressed the challenges of the '90s.

Robert Deming, director of athletics at Ithaca College, says the injuries connected with artificial turf, at least among Division A football and baseball, means stadium conversions to natural turf will be a big issue in coming years.

"Artificial turf has been found to provide less-than-ideal playing conditions," says Deming. Player safety is naturally one reason natural turf is preferred to artificial surfaces. The rising cost of medical care is the other.

Deming says most colleges saw the decline coming, but the reality of the numbers is still sobering.

Deming believes in using "creative prioritizing" of certain budget expenses. After an accident in which a player was cut leaping into a Cyclone fence in pursuit of a fly ball—

Deming decided to cap the Cyclone fence around the field. To get the \$980 request through, he assigned a "safety related factor" priority to the item.

Post-season play in the college or high school ranks poses another challenge to maintenance budgets. Ithaca has often been in post-season baseball playoffs, and the solution, says Deming, is to add 20 percent to the following year's budget if post-season play looks probable.

Communication between coaches and physical plant personnel and turf outsiders is a key element in the Ithaca plan.

"There's no such thing as infinite wisdom," says Deming who believes in tapping into the knowledge and insight of others in the business.

"You have the knowledge in your area," says Deming, "but you need to talk to the experts in the area of turf science. Seek answers and ask questions."

Twice the problems—John Fik, grounds and landscape manager at Hobart College and William Smith College in Geneva, N.Y., has his hands full. Two colleges can mean twice the challenges.

"Strike a balance between the needs of the coaches, the safety of the players with the agronomic needs of the turf," says Fik, who uses field hockey as an example.

"Field hockey coaches are constantly striving for a very level surface, which is difficult to achieve in field hockey," explains Fik, who now uses a turf roller.

"But rolling the turf too much can often impede percolation," warns Fik. "The surface