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# AS WE SEE IT

TERRY McIVER, MANAGING EDITOR



## Natural turf, hort therapy and other musings for the month

The University of Missouri will soon replace its "concrete" football field with natural turf—good news for players and athletic department budget-balancers. Medical costs are high enough without avoidable sports injuries. The switch is happening at schools across the U.S.

How ironic: artificial turf was celebrated as being so much cheaper to maintain than natural turf (which, by the way, is not true) and look at what happened. Costs from injuries go through the dome.

Get ready for a rough few years if you're an athletic field manager. Enrollment is down at many colleges, and that means budgets ain't goin' nowhere but maybe down.

You've got to invent new ways to raise money from casino nights to field rentals. There should be a way to increase athletic field maintenance dollars, especially if field use is on the rise.

Dr. Tim Bowyer of Southern Turf Nurseries, for instance, knows of athletic departments that sell off pieces of the old field. According to Bowyer, alumni are happy to pay "big money" for a clod off the old field (not to be confused with a chip off the old block), especially if the school has a strong football tradition.

### Hort therapy

When we first heard about "horticultural therapy," the term made me cringe from the "New Age" connotations it conjured up. But this is different. Douglas Airhart, associate professor at Tennessee Technological University, says horticultural therapy helps rehabilitate disabled or otherwise ill persons through contact with plants.

"Most gardeners know the soul-reviving powers of gardening, the excitement of the first bloom, and the therapeutic exercise involved in hoeing, weeding and pruning," says Airhart.

"Today, trained horticultural therapists use the healing powers of gardening and horticultural activities to help people

learn to help themselves, in hospitals, nursing homes, schools, prisons, botanical gardens and flower shops."

Airhart says hort therapy helps to improve self-esteem, social interaction, intellectual stimulation and emotional development.

Not to get all fuzzy wuzzy here, but working with plants—even if it's as simple as transplanting a fern to a larger pot (the extent of my own involvement and expertise in horticulture)—seems a pleasant-enough thing to do.

Apparently, the therapeutic value of horticultural pursuit is "rooted" (sorry, couldn't resist the pun) in ancient Egypt. In the U.S., says Airhart, it was common for 18th century mental institutions to employ patients in the growing and harvesting of crops on the farmland.

For more information, contact Dr. Airhart at (615) 372-3288.

### An industry's loss

Finally, the green industry lost an ally and practitioner of rational, educated debate on environmental issues with the death in December of Dixy Lee Ray.

Ray, a former governor of Washington state, wrote two books over the past few years dealing with common sense and environmental protection. "Trashing the Planet" is a well-written and fact-filled reference in the debate over what man is supposedly doing to the environment in the name of progress.

Ms. Ray and her common sense will be missed.



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'WE KNOW YOUR TURF'

FEBRUARY 1994 VOL. 33, NO. 2

## COVER FEATURE

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Where do you start when you want healthy turfgrass and landscape ornamentals? With the soil. So if your soil isn't up to snuff, here's what to do.

*Ron Hall*

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*Terry McIver*

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*Terry McIver*

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*Jerry Roche*



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*Jerry Roche*

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*Bess Ritter May*

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Early spring is a time to review your fertilization program. Did your turf flourish last season, or was growth poor? Was it non-responsive to fertilization?

*J.B. Sartain, Ph.D.*

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Turfgrasses need at least four hours of full sunlight per day. You, however, can make certain decisions that will help turf in shady areas stay healthy.

*Joseph M. DiPaola, Ph.D.*



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*James Latham*

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*Ron Hall*

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*Ron Hall*

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# ASK THE EXPERT

DR. BALAKRISHNA RAO



## Determining tree health and stability

**Problem:** One of our clients has a large, 3½ ft. dbh oak tree in their yard close to a swimming pool. This tree has a basal root rot and the tree is leaning towards the pool slightly. Is there some way to find out how strong the tree is, and whether or not it can be saved?

**Another tree in the neighborhood died last year, possibly due to a similar problem. (Ohio)**

**Solution:** Several disease-causing agents can cause root rot and make trees unstable. Depending upon the health of your trees, this could be a potentially hazardous tree and may be a liability problem.

To determine the tree's health, contact a certified arborist with experience in dealing with hazardous tree evaluations. The extended type of root rot and/or possible internal decay/cavity need to be examined before providing any preservation treatments.

After the evaluation, if the tree has good supporting tissues, then consider providing cultural treatments, including proper fertilizing, mulching, aerating and selective pruning to help improve the plant's health.

If the crown is very heavy, selective pruning should help air movement and reduce the risk from storm damage.

In general, root rot diseases are difficult to manage. If the disease is caused by fungi like *Phytophthora sp.*, Subdue or Aliette fungicide treatments might be beneficial. If the root rot disease is caused by *Armillaria sp.*, the causal agent of shoestring root rot, no known fungicidal treatments will manage this. General recommendations include removing the soil from the base of the tree and root flare, and opening the affected area to allow it to air dry. This will help the tree produce wood tissue faster. Before winter, put the soil back on the root flare to protect it from low temperature injury.

For all practical purposes, in my opinion the tree should be considered unstable if there is any basal rot or decay. If it is a potential liability issue, then removing the tree might be a good idea.

## Are pesticides weakened by high pH?

**Problem:** We understand that certain pesticides can break down rapidly if the pH of the water in the mixture is above 7.0. Is the insecticide Sevin subject to this problem? If so, what effect will it have on pest management results? Also how long can a treatment mixture be retained and used? Sometimes, due to rain or other problems, we may not be able to use pre-mixed solutions. (New York)

**Solution:** Many pesticides are sensitive to degradation by the chemical reaction—alkaline hydrolysis—when mixed with water containing a high pH. This reaction and degradation is commonly experienced with carbamates or organophosphates. With some exceptions, the degradation process is generally faster with carbamate pesticides like Sevin than with organophosphate pesticides such as Dursban.

Since you are concerned with Sevin insecticide, the following

information should help you better understand the problem. Laboratory studies with Sevin brand carbaryl showed the following rates of degradation based on half-life of carbaryl under different pH ranges.

Spray pH	Carbaryl half-life
3.0	Stable
5.0	Stable
6.0	Stable at 25° C; 29 days at 35° C
7.0	10.5 days at 20° C
8.0	1.3 days
9.0	2.5 hours
10.0	15 minutes

In reviewing the above information, it appears that, for optimum treatment results, it is better to have a pH maintained closer to neutral or lower. As you can see, even at pH 8.0 the material's half-life would be 1.3 days, which means it should be good for part of the following day if you mixed the previous day. However, if you can maintain the pH of 7 (neutral) the shelf life can be extended to 10.5 days at 20° C.

A Rhone-Poulenc company representative says that the more dilute the spray solution and/or the higher the temperature of the spray mix, the greater and more rapid are the effects of pH.

Read and follow label specifications for better results.

## Dylox not labeled for chinch bugs

**Problem:** Can we use Dylox granular insecticide to manage a chinch bug problem in lawns? (Pennsylvania)

**Solution:** The Dylox 6.2 granular insecticide label does not include chinch bug. Although those who have used Dylox for grub control feel that it gives some level of control of chinch bugs also. However, Dursban has been known to better manage chinch bugs. I suggest using other insecticides since Dylox is not labeled for chinch bugs.

*Dr. Balakrishna Rao is Manager of Research and Technical Development for the Davey Tree Co., Kent, Ohio.*

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# 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.

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-

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





**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."

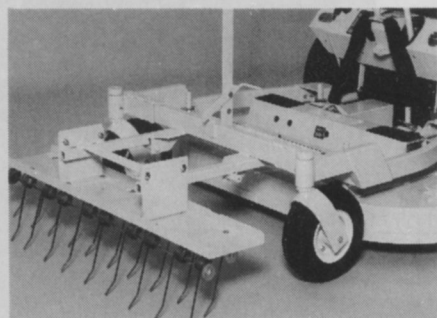
And whether your budget allows you to buy a unit dedicated exclusively to dethatching, or a trailer unit or an attachment, if you don't have a dethatcher, you can't clear away the dead grass and stems and leaves and whatever else has built up in the turf since November.

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)

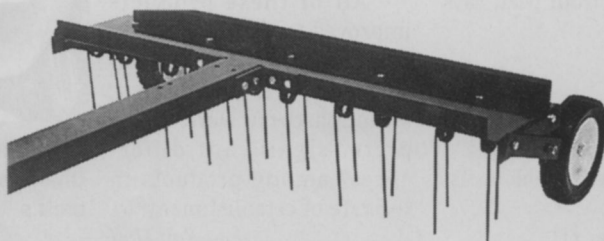
The Parker Power Thatcher cuts a full 19-inch swath through built up thatch. Three reel attachments to choose from: tine, knife and flail. (#316)



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 built 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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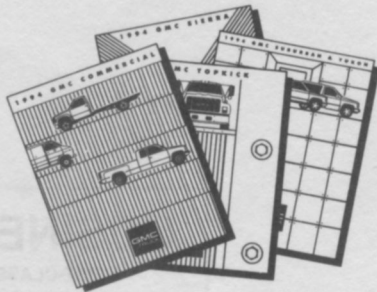
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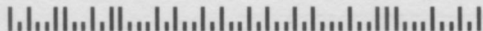


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# Mulching mowers: saving the environment?

**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



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# HANG TEN





◀ **Hornung: Follow maintenance and construction standards.**

▼ **Fik: Balance player needs with turf agronomic needs.**



is not going to accept much more water unless you aerify it. If it rains, the water just sits there."

The answer lies in compromise.

"We tell the coaches we will not roll the field under certain conditions," says Fik. "Luckily, an indoor practice facility makes the decision easy to deal with."

Fik says the field hockey coaches also like a short turf height, from 3/4 to 7/8 inches, which gives him the willies.

"Depending on the type of grass, that's difficult to do; you could be inviting weed and disease problems," says Fik. "So we overseed at certain times of the year to get it down to that height."

"We also bought a Jacobsen Tri-King reel mower. Marriott and the two colleges each kicked in a third of the cost for the mower." To thin the turf, Fik's crew makes two passes with a Jacobsen sweeper and try to refrain from watering for three days.

Fik believes player safety is closely related to proper drainage. Identify the problem drainage areas, and work with the athletic department to outline a budget for a gradual repair program.

**On expectations**—Donald Sauvigne, director of building and grounds services at Columbia University says the future of sports turf management "is going to be based on how well we manage the expectations of others. In order to manage everyone's expectations, we have to educate them, and understand what their expectations are."

"The dilemma facing higher education is that nobody wants to hear our financial problems, but we've been meeting people's growing expectations for years, and we've become victims of our

own success."

To best react to the enrollment crisis, which is likely to put a dent in field budgets, Sauvigne says every turf manager needs to understand and subscribe to the objectives of the university it serves.

"Understand the place of sports turf and the mission of the school when it comes to athletics. The turf manager is a member of the team in helping support those expectations."

**Pro sports**—The future of sports turf has never been brighter," says Jim Hornung, head

## SPORTS TURF: CUSTOMER-DRIVEN

1. Know expectations of players, coaches, athletic departments and fans.

2. Maximize financial and personnel resources to meet expectations.

3. Reconcile differences and communicate.

—Don Sauvigne, Columbia University

groundskeeper at Pilot Field, Buffalo, N.Y. He points to expanding interest in women's sports and the growing interest in soccer as factors.

Hornung says it's essential that we meet at least minimal construction and maintenance standards.

"We need to know what the soils are going to do, how they're going to play," says Hornung. "It's no different than what the golf course superintendents have been doing for years. They have a standard and they live by it."

Why do manufacturers fight? asks Hornung. "It's always Product A vs. Product B vs. Product C." Hornung would like manufacturers to work together more to solve common industry turf care problems.

"There are many tools we can use to meet expected maintenance standards. One aerifier or one sprayer may not be enough. There are no saviors in the equipment world."

"We all must give 100 percent and then some," urges Hornung, for two reasons: safety and aesthetics.

He suggests field managers present their budgets a little differently to make the sale.

"Talk in cents per square foot rather than thousands of dollars for the entire field," suggests Hornung, to soften the blow of asking for big bucks.

—Terry McIver

## MODULAR SOD FOR THE PROS

**Dr. Henry Indyk**, turfgrass consultant with Turfcon, notes that Turfcon's ITM system, patented in March of 1993, is a natural turf system that uses transportable turf. Modules measuring 48x40x6 inches were used for practice tee areas at the U.S. Open at Baltusrol.

Indyk believes the stadium of the future will be an indoor facility with natural turf. The turf will be grown on a single unit module that slides from the domed stadium into an adjacent greenhouse. The stadium can be used for other events, and the turf is cared for in the greenhouse.

**Arthur Milberger**, president of Milberger Turf Farms supervised the installation of modular sod in the Super Dome in New Orleans for World Cup soccer matches July 1, 1991. The modules contain deep cut sod, 5-1/2 inches deep, and have no sides.

Hybrid bermudagrass seems to provide the best playing surface, after testing by Dr. James Beard. Ball-bounce and Clegg impactor studies on the modules and a turf-tray containing hybrid bermudagrass ranked tops in all tests.

Zoysiagrass ranked second due to inconsistent ball-bounce, and rough playing surface, as judged by players.

Bluegrass was the best looking surface, but ranked worst in playing conditions.

"Our future is very promising," says Milberger, "through the research of (Drs.) Trey Rogers and Henry Indyk."



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rate of herbicide for the weed you want to control. You'll get better results from your application, and reduce the chances you'll have to re-apply.

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# Successful business: it's about selling, not about landscaping

Can you visualize the mega-deal? That's the first step toward actually selling the deal of your dreams.



**Joel Lerner: 'The more contacts and recontacts you make, the more you will sell.'**

■ Joel Lerner, who has done enough selling to know, says that confidence, a positive attitude and honesty are the keys to selling landscape services.

"You're not selling a service or product," Lerner says. "You are selling yourself. You must expect to succeed. Positive attitudes beget positive responses."

Lerner, owner of Lerner Environmental Design in Chevy Chase, Md. made these revelations during a presentation at the Professional Grounds Management Society's annual conference last year.

As he noted, confidence is a key to successful selling. And "education, field experience and marketing blend together to give you the confidence to sell."

Rejection, though, is an integral part of selling. "You must turn every failure into a positive experience," he notes. "If you don't get a commitment, stay in touch anyway. Call your files all the time."

Here are some basic tips he offered the audience:

- Pound the pavement; personal visits are the best.

- Be friendly, professional and positive.
- Be honest. Clients hate surprises.

**The first contact**—Selling begins with the first consultation, Lerner believes. And at the first meeting, you should try and convince the prospective customer that "landscaping is the only home improvement that increases as it matures."

From that point, you should sell everything you're offering to the homeowner or other prospective customer.

"My cardinal rule is that if you spend time with a client, you should charge a fee," Lerner advises. "Act independent, charge a fee for your services and consultation."

"You don't need to act desperate for money, either."

He also believes that you should never mention price until it's brought up by the prospective client. "When you *do* have to quote a price, test the waters," he adds. "Throw out a ballpark figure and watch the property owner's response. Read the person; adjust the figures and get a fair amount of what the market will bear."

**Pricing**—Lerner warns against quoting a low price right off the bat.

"You don't know what you can get until you try," he says. "It's impossible to crank up prices, but it's not impossible to lower them. And many times, when you *do* lower your original bid, it gets you the job."

"Low prices don't produce loyalty. I hear everyone talking about the lowballers, but I don't hear talk about the highballers—and they're the ones making the money."

Your service is too valuable to make price the issue, he contends. "Price is simply the vehicle through which great things are accomplished."

If a client cannot afford your original

package, find out what is affordable. If the client tells you that one of your competitors is selling for less, you have to be prepared to explain why your price is more—perhaps because you offer better quality services, guarantees, quality products or dependability.

**Closing the sale**—In his book "Joel M. Lerner's Landscape Professional's Marketing and Sales Source Book," the author emphasizes that you should not forget to ask the prospect to buy. "It has been reported that more than 50 percent of all sales are lost because the customer was never asked to buy," he writes.

"If you don't ask, the answer is an automatic 'no,'" he contends.

(You can reach Joel M. Lerner Environmental Design by writing P.O. Box 15121, Chevy Chase, MD 20825-5121 or by phoning (301) 495-4747.)

—Jerry Roche

## LEARNER'S GUIDELINES TO SUCCESSFUL MARKETING:

- 1) Sell yourself.
- 2) Visualize success.
- 3) Pound the pavement: the more contacts you make, the more you will sell.
- 4) Work hard: all "breaks" are self-made.
- 5) Don't let your ego get in the way: customers are not dependent on you, you are dependent on them.
- 6) Don't act desperate.
- 7) Don't make promises you can't keep.
- 8) Use visuals to get the client thinking and active.
- 9) Focus on value, not price.
- 10) Make money on everything you provide, including consultations.



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# MOTIVATION: key to PRODUCTIVITY



**Helms: 'Other people may be 100% responsible for what they do to you. But you are 100% responsible for the way you react.'**

■ You can put a carrot in front of employees and lure them. You can take a stick and whomp their behind. But that's not motivation, according to Larry Helms of Western Training Systems, Medford, Ore.

"You can't motivate anyone to do what they don't want to do," Helms told an Associated Landscape Contractors of America audience at its annual conference last year. "You've got to know the button to push. Just because you are stimulated in a certain way doesn't mean everyone else is stimulated by the same things."

The more team building you can do, the more productive your employees will be, Helms said. He cited the six keys to motivation:

**1) Ask for it.** Describe how the job is being done now, and how you want it to be. Then ask the employee to do it that way.

**2) Use lots of positive reinforcement** and personalize it. Don't take acceptable work for granted. Praise them every time they improve. Find out what works with each of your people and use it.

**3) Build relationships.** You shouldn't be buddy-buddy, but treat people like real, live human beings. They'll respond best when you show you respect their individuality and trust their intentions.

**4) Understand your employees' point of view.** Listen to your people and ask for their opinion before giving directions or offering advice. Listen first, and listen with an open mind.

**5) Model the behavior you want to get back.** Show employees by your actions that the job matters, that quality is important, and deadlines are real.

**6) Refuse to accept poor performance.** When you demonstrate that standards matter, that, in itself, is motivational.

When asked what makes them happier and most productive on the job, most employees say, first and foremost, appreciation for their efforts. (Other factors, in order of importance, are: "being in on things," help on personal problems, job security, high wages, interesting work, promotion, and loyalty of supervisor.)

Thus, recognition plays perhaps the most important role in motivating employees. It makes people "feel like they're winners," Helms observes.

He says that you, as a manager, should recognize individuals as well as groups, people as well as achievements. The recognition should be sincere, timely and individualized.

**Job loading**—Another key is to avoid "vertical job loading," the practice of giving one employee the same type of job all

*"If you rule with an iron fist, you get either malicious obedience or gleeful insubordination," this expert says.*

## THE MOST IMPORTANT WORDS

*The six most important words:  
"I admit I made a mistake."*

*The five most important words:  
"You did a good job."*

*The four most important words:  
"What is your opinion?"*

*The three most important words:  
"Will you please...?"*

*The two most important words:  
"Thank you."*

*The most important word:  
"We"*

*The least important word:  
"I"*

the time.

"The more 'vertical job loading,' the less satisfaction, productivity and stability," Helms notes. "Give the employees some variety."

He also suggests that you improve team effectiveness through regular staff meetings, regular supervisory meetings, idea boxes and a regular, updated exam policy.

Finally, a positive mental attitude on the part of the manager will likely rub off on employees, Helms concludes. "Whatever the mind of man can conceive and believe, it can achieve."

—Jerry Roche

### WHY PEOPLE QUIT:

Limited advancement opportunities.....	47%
Lack of recognition .....	26%
Unhappiness with management .....	15%
Boredom .....	6%
Inadequate salary .....	6%



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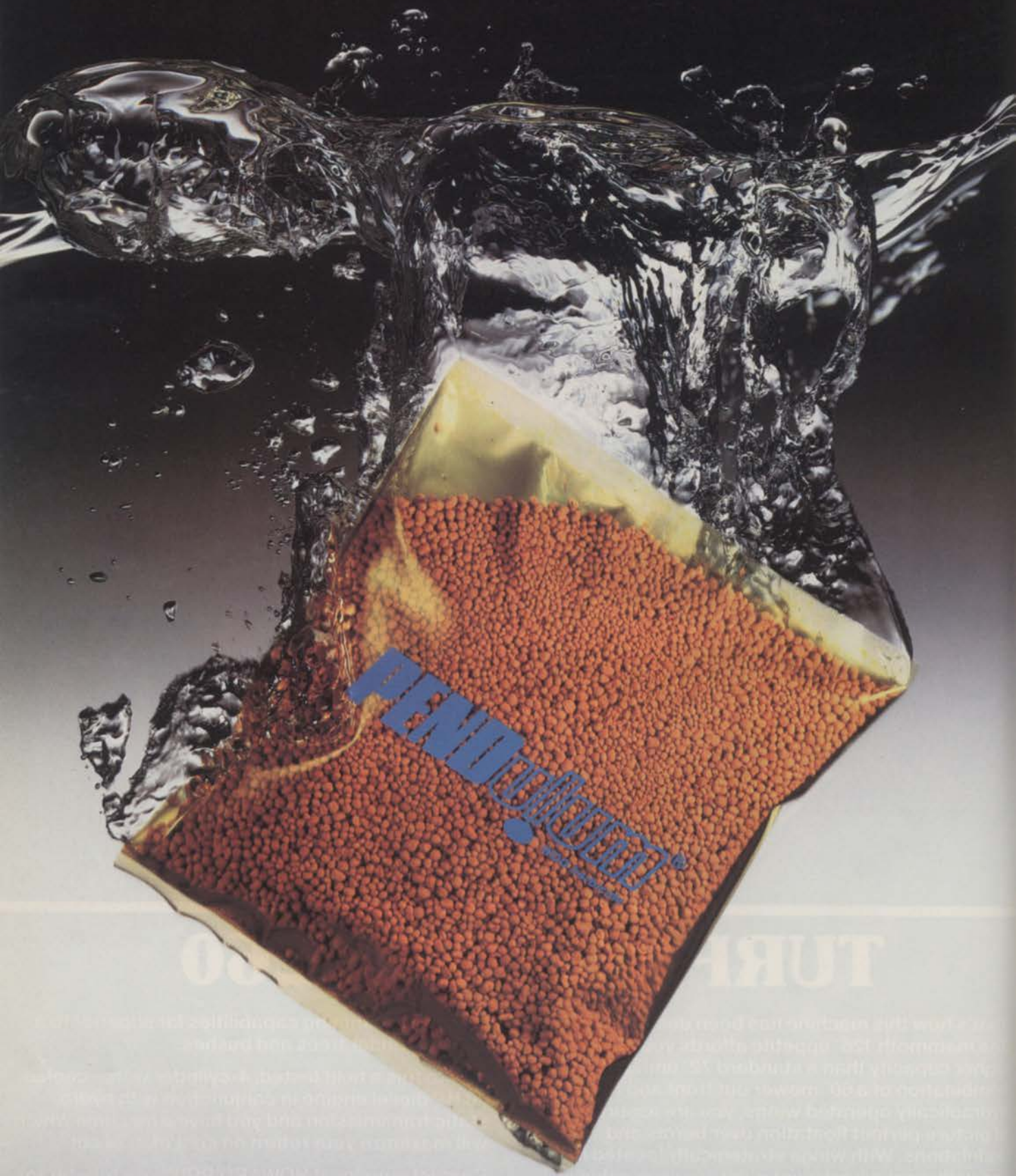
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# Bottom-up management

Delegate responsibility for reviewing suggestions to a committee of employees.

**Ask your employees what they want and need for the company, solicit their suggestions—and then listen.**

by Ed Wandtke

■ Today, the skills you need to lead, manage and direct your company are becoming more complex. Many of you are discovering that, by allowing more people into the planning and directing process, company performance is improved.

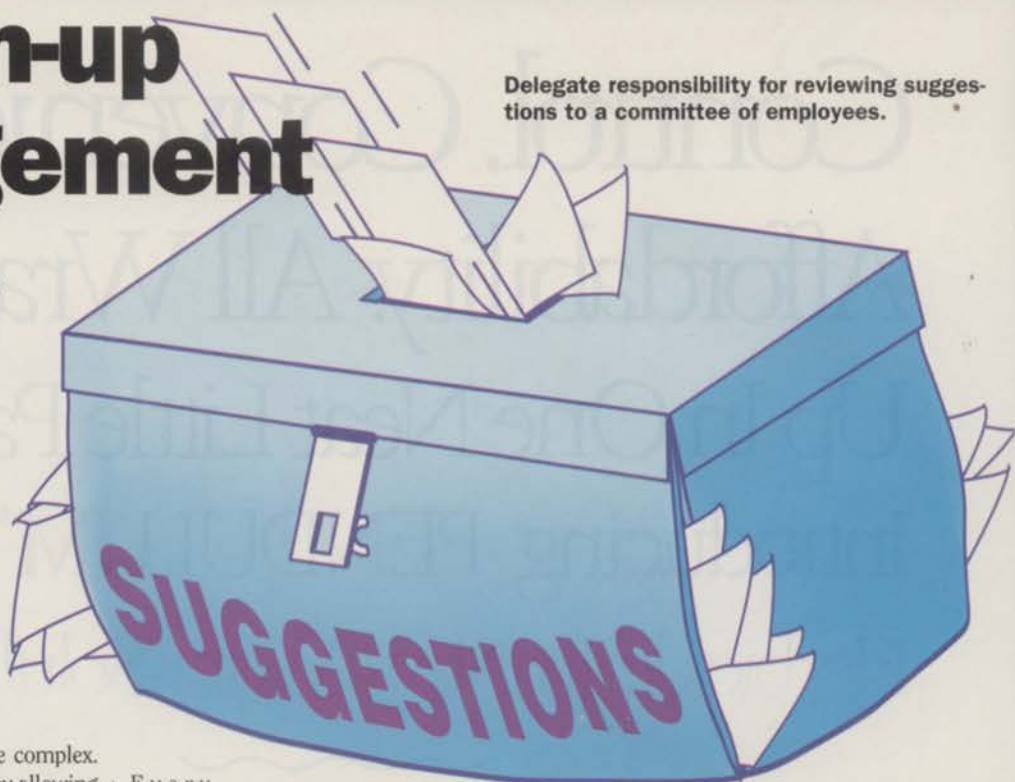
If, however, you have been your company's sole "brain trust," here are some ideas on how to involve your employees more in its operation.

**Suggestion boxes**—For years, companies have used suggestion boxes. But the concept doesn't work if you fail to react to the ideas suggested or to reward the contributors. As you embark on a new business year, now is the time to reactivate this informal system of receiving ideas from your employees.

One company has discovered that a great way to start the suggestion system is to delegate responsibility for reviewing employee suggestions to a committee. By using three employees instead of the owner to evaluate suggestions, the quality of the suggestions seems to be increasing. Posting the good suggestions and the rewards paid to individual workers (or to the entire staff) also serves to encourage participation in the suggestion system.

**Participation in planning**—Some companies frequently fail to take advantage of an excellent resource—their employees—when developing the company's future direction. Aggressive companies have found the following method of employee participation to be very helpful:

Every year, one or two days are set aside for all employees to go to an off-site retreat. Here, small groups focus on what the company is doing, how it is doing it, and things the company may consider doing differently.



Every employee is involved in evaluating the company. Realizing that there is no right or wrong answer to questions, employees often speak very openly.

If you have more than 25 full-time employees, I suggest you break the participants down into two equal-sized groups. Enabling all employees to speak and participate is necessary for this type of planning to be effective.

**TQM**—Setting up a system of Total Quality Management means that all employees need to play an active role in delivering quality service—no matter what portion of the industry you are in. So ask yourself the following questions:

- Do customers feel comfortable talking about the quality of your service with any employees they meet?
- Do employees have the option to make decisions on a job, based on customer concerns, without checking with you first?
- When messages are passed from customers through employees to you, are you certain that you are receiving each request?
- When employees join your company, do they learn the chain of command, your work rules and operating procedures before they are allowed in the field to perform services?
- Is each employee accountable for the work he or she performs?
- Are employees encouraged to make suggestions and to seek new business as they see opportunities?

If your response to any of these questions

is "no," your company is not taking advantage of one of its most valuable resources, your employees.

**Refocusing**—If employees lack a basic understanding of the company (what it is, what it does, who your targeted customers are, why you are in this business), they may often do things that don't help the company. Changing your information and communication system, along with establishing accountable work groups, is one method to improve a company's performance.

To be successful in the future, you will need to adapt to changing management systems and operating systems. You will need to become a leader with a vision, which then needs to be shared with employees.

Having all your employees know where the company is headed and how they can participate is critical. This will lead to a more harmonious workforce and faster achievement of company and individual goals. When employees have had a hand in setting company goals, the companies consistently achieve a better performance than the owner might have planned.

Don't underestimate the performance capabilities of your employees. They often want to reach higher goals, faster than you might expect. Bring employees into your planning process and the results will be rewarding to both the employees and to you.

—Ed Wandtke is owner of Wandtke & Associates, Columbus, Ohio. For more information on Wandtke's business consulting services, phone (800) 966-3546.



# BIOTURF NEWS



## Plants thrive on organic diet, says Atlanta landscaping firm

**Post Landscape Services says the plants are more vigorous, healthy.**

by Todd Tibbitts,  
Post Landscape Services

Post Properties, Inc., developers of more than 70 apartment complexes, has throughout its history had a policy of protecting the natural settings that surround its various projects.

The concern has carried over to Post Landscape Services, a subsidiary of Post Properties, and it has also expanded to handle commercial clients other than Post Apartment Homes.

One aspect of enriching the soil, a

key element in the Post approach, is the use of organic fertilizers and pesticides.

The use of organics is but one part of an overall commitment by PLS to retain the natural beauty of the land.

When PLS develops a site, among the considerations are retention of native trees, wildlife preservation, wetland preservation, water efficient landscaping, positioning of trees for maximum shade and windbreak, and the retention of the natural land contours for proper drainage and aesthetics.

The primary goal is to plant and maintain outdoor living environments which will be actively used and enjoyed by residents of Post Apartment Homes or the residents of other commercial properties serviced by Post.

An appealing landscape is best appreciated when people can wander among the green foliage and colorful flowers.

### Balance IPM

The use of organics in maintaining the landscape around an apartment complex is an extension of the considerations that begin during the planning and preparation stages for a site. One of the purposes behind the use of organics is to balance out an



Containers in the Post River Apartments are kept on an organic program.

integrated pest management program.

As is well known, organics allow for biological control of pests, rather than chemical control.

Lady bugs and other beneficial insects or microbes are left alive, and soil can actually be enriched and become more productive.

With these positive results, plants are more vigorous, and healthy plants can survive changes in weather conditions, such as drought.

PLS Floriculture Manager Carol Hooks has noted that plants previously



Conifers and perennials at the Post Vinings Apartment community in Smyrna, Georgia. In the foreground are *Ajuga*. *Dianthus* 'Baths Pink' are in the background.

### INSIDE

- The importance of quality topsoil
- Baited traps monitor insect activity
- Sample scouting plan



labeled as problem performers began flourishing as the soil conditions responded to use of organic matter. This was particularly important in beds that had been chemically treated for 20 years, and had been depleted of essential microorganisms. The increase in microbial activity as a result of the organic treatment worked wonders, says Hooks.

Organics have been most productive on flower beds maintained by Post. The formulation used in flower beds is consistent with commercial fertilizers, and granular forms are available. These products are applied by hand.

When Post began to test the use of organic products, flower beds were chosen because a contained, controllable plot could be isolated. In the case of flowers, which have a short duration and require more regular attention, organics are a good fit, as they are for vegetable gardens.

Protecting the integrity of the environment is the foremost motivation for the use of organics at Post Landscape Services. But, as stated earlier, healthy plants are more vigorous, and for flowers, this results in more vivid color. The investment in organics, which are still more expensive than alternative fertilizers and pesticides, can produce long term benefits by contributing to soil quality and generating better plants. For a developer, this end result makes the investment in landscaping more cost effective, while at the same time, produce attractive scenery anyone can appreciate.

Post Landscape Services has maintained these principles in all of its installation and maintenance practices. With a greater demand for organic products by the public, the price has begun to fall gradually on the products for the commercial market.

This trend should continue as more developers and property managers begin to appreciate the merits of organic products.

—The author is vice president of Post Landscape Services, Atlanta, Ga.



The Rosa 'Nearly Wild' bloom eight months a year. Fertilizer is applied only occasionally.



Spring pansies and tulips in Smyrna, Ga. Cool season applications of organic products on winter annuals help keep the bloom count high.



Summer flowers on display at the Post Bridge Apartments in Marietta. Post uses organic products on more than six acres of flowers around the city.



# Quality topsoil delivers best results

**Quality soil makes the balance of site work easy in the short and long term.**

by Paul D. Sachs

■ The soil in a new landscape application is like the foundation of a new building: if quality is overlooked at this stage, many problems will undoubtedly lay ahead.

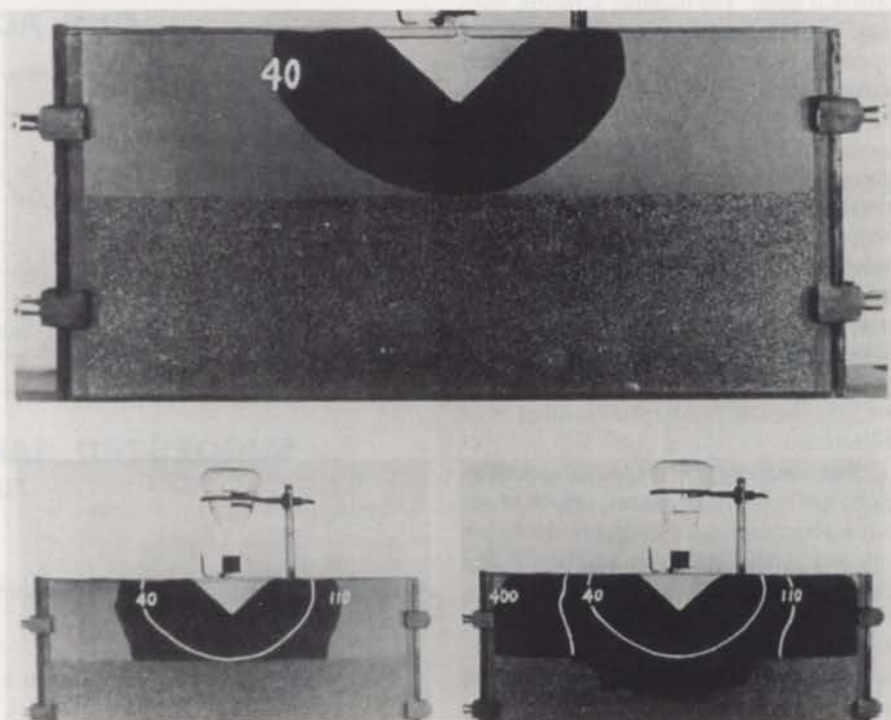
Unfortunately, soil at a site is rarely specified to be improved in most contracts. The more common practice is to call for imported topsoil and lay it down four to six inches deep. This superficial fix can cause a malady called layering which disables the capillary movement of air and water through the soil.

Many years ago a scientist named W.H. Gardner found that the movement of water was abruptly inhibited by inconsistent layers of soil. His experiments (see Fig. 1) showed that a layer of topsoil applied to a subsoil with a significantly different consistency became an insufficient reservoir of moisture for whatever crop was planted. As the topsoil settles and/or compresses over the years, that reservoir shrinks. The topsoil may never integrate enough with the subsoil to permit proper capillary movement of water and atmosphere.

During heavy rains the topsoil layer will become saturated with water before any drainage into the layer below occurs. This condition starves the roots of oxygen and stresses the plants. It can also cause denitrification which results in a loss of available soil nitrogen. When drought periods occur the field capacity of four to six inches of topsoil is often not enough to sustain the moisture needs of plants. Starting a site with this problem can be a warrantee of many more problems to come.

When replacing soil from an excavated site, the subsoil is oftentimes compacted by the repeated passes of heavy equipment.

**W**hen replacing soil from an excavated site, the subsoil is oftentimes compacted by the repeated passes of heavy construction equipment.



**Fig. 1: Experiments by W.H. Gardner found that water movement is inhibited by inconsistent layers of topsoil. Numbers indicate minutes to reach saturation points.**

This also disrupts the flow of water and atmosphere through soil layers. However, controlling compaction during construction is often difficult. The remedy is to attempt a replication of the natural changes from subsoil to topsoil.

As the level of backfilling approaches twelve to sixteen inches below grade, topsoil could be added and mixed with the replacement subsoil so that abrupt changes in the soil's horizons do not occur. This can be accomplished with a rototiller, harrow, plow, or by premixing the subsoil with topsoil. As backfilling gets closer to grade (within eight to ten inches) a greater percentage of topsoil can be mixed with the subsoil. The last four to six inches of backfilling can be accomplished with straight topsoil.

This construction design provides more gradual changes in the soil's physical structure allowing better movement of air and water. Root systems of plants will have better drought resistance and easier access to

soil atmosphere. This program may be more expensive in the short term, but can be much less expensive in the long term if some of the problems associated with layering do not occur.

In areas where backfilling is not part of the operation, some topsoil should be worked into the existing soil before the final 4-6 inch layer is applied. This transitional layer will mitigate the abrupt changes from poor soil to quality loam. The practice can also loosen the compacted rough grade layer.

The quality of the topsoil being imported is another area that should require more scrutiny. Topsoil is often ordered from suppliers, dumped, and spread without any question of where it came from or how rich it is in nutrients and organic matter. Some physical attributes may be noted by the contractor but it is usually related to the ease or the difficulty of handling the material.

Knowing the quality of topsoil might be analogous to knowing the quality of the concrete being poured for the footings of a tall building. The consequences of poor quality in either case could result in complete reconstruction at some point down the road. Without a soil test, the long



term success of a landscape is at risk.

Imported topsoil is often changed in the transition of where it comes from to where it goes. The digging, scraping, dozing, loading, transporting, dumping, and spreading of topsoil causes significant changes to its structure, chemistry, and biology. If topsoil is left sitting in a pile for any extended period of time, more of these changes will occur. Unfortunately none of these changes improve the quality of the topsoil. Organic matter is diminished, beneficial organisms such as earthworms and mycorrhizae fungi are all but wiped out, and the aggregation of soil particles is significantly lessened. If the topsoil was of poor quality where it was excavated, then it will be even less acceptable when it is delivered.

**Soil testing.** Too often site specifications call for lime, fertilizer, and/or other amendments without analyzing the existing soil conditions. This practice is like hunting in the dark, by discharging every round of ammunition in ones possession in the hope that some game will be hit. It is not a practical approach in terms of cost efficiency or in addressing any real deficiencies or excesses that exist in the soil.

Additionally, excess or unneeded applications of fertilizer can cause pollution which may have liability ramifications for the owner, the designer who wrote the specifications, and the contractor who applies it.

Conducting a soil test is a simple and inexpensive way to insure that the proper amount of soil conditioners are applied. However, if the soil samples gathered do not represent the overall soil conditions, the information from the analysis report will be less helpful than no information at all.

**How to take samples.** In any given area, it would be rare if two soil samples could be found, even if they were drawn a foot away from each other, that produced the exact same test results. So it is extremely important to get a good representation of the entire area being evaluated. The test results will only be as useful as the sample is accurate. Fig. 2 shows an example of a sampling pattern usually recommended to insure results that are relative to the overall condition of the area. The number of samples taken should depend on the size of the area. The more samples taken, the better the representation.

**K**nowing how much organic matter is in the soil is like knowing how much fuel is in the tank of your automobile.

If imported topsoil is being used on a job it is a good idea to test a sample of it. Like anything else, there are good quality materials as well as poor quality materials.

The same sampling procedure should be used on a pile of topsoil to get a good representation of the entire shipment. Most labs offer recommendations either automatically or as an option that costs a little extra and are based on the data derived from the sample. Therefore, the lab recommendations are only as good as the samples taken. Recommendations are based on nutrient uptake of specific plants under average conditions. Normally, a lab will ask for more information such as type of crop, crop use, topography and previous treatments if they are to provide recommendations.

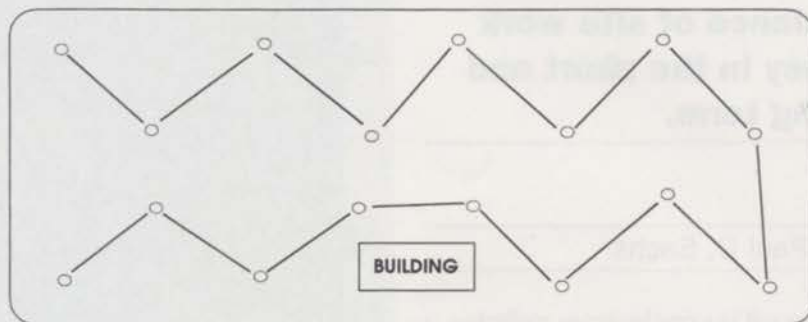
**Organic matter.** Organic matter is a barometer of soil health. The population of organisms that is supported by soil organic matter is of immeasurable benefit to plants. More organic matter means more decomposers that recycle nutrient from plant and animal residues faster; more nitrogen fixing and mineralizing bacteria; more beneficial organisms that help dissolve mineral, transport water

from soil depths and help control pathogenic fungi; and more humus that increases the water and nutrient holding capacity of the soil. Humus acts like a sponge in the soil which expands and contracts as its moisture level changes. This activity within the soil creates porosity which improves the movement of air and water.

The test for organic matter, especially in a sample of imported topsoil, is important. Topsoil with an organic matter content of less than two percent in temperate regions should be considered an inferior quality material. Topsoils with four percent or more organic matter are superior and should be preferred in site specifications. Muck soils with twenty percent or more organic matter can be too much of a good thing. They can be soggy and difficult to work with and not an ideal growing medium for many cultivated plants.

As we move closer to the equator, high levels of organic matter in soils are more difficult to find and maintain because the warmer annual temperatures increase the biological activity that decomposes soil organic matter. However, this is not a reason to accept poor quality topsoil. Many suppliers are now mixing composted organic wastes into topsoil, increasing the percentage of organic matter. Beginning a job with higher quality topsoil, even in the warmer regions of the country, gives plants a better chance for long term survival.

## ONE ACRE LOT



## SUGGESTED SAMPLING PATTERN

Figure 2

A sampling pattern similar to the one shown above improves your chances of obtaining an accurate soil analysis.



Peat moss is also used as a means to increase the organic matter content of topsoil, and although it does lower the bulk density of the soil and provide porosity, it does not break down into humus very quickly and will take longer to provide many of the benefits of a stable soil organic matter.

An alternative to applying imported topsoil is the incorporation of high quality compost into the native soil. This practice enables one to improve the existing soil environment as opposed to creating a new one.

Adding compost will stimulate beneficial soil functions but it is important to understand that compost is not stable soil humus. Less than one percent of a compost application may actually become stable soil humus (depending on soil conditions, climate, and the way in which the soil is managed). If the top six to seven inches of soil weighs two million pounds per acre and the compost being

used is 50 percent organic matter, then it would take 20 tons per acre to temporarily raise the soil organic matter by one percent. Heavy applications of compost (greater than 30 tons per acre) are not recommended unless it is incorporated into the soil because, like layers of topsoil, it can disrupt the flow of water and atmosphere through the soil horizons. Tilling or dicing in ample amounts of compost can change the quality of a backfilled subsoil into a

medium that promotes vigorous plant growth without the occurrence of layering. Another advantage of compost over topsoil is that it usually contains little or no weed seed, negating

the need for a herbicide application. Construction of the soil requires the same care of design and quality materials as any structure that is built to last. The proper structure and fertility of any soil is important if the quality of a landscape is designed for the long term.

**A**n advantage of compost over topsoil is that it usually has little or no weed seed, negating the need for a herbicide application.

*Paul Sachs is founder and president of North Country Organics, a Vermont-based manufacturer and supplier of natural fertilizers, soil amendments and environmentally compatible pest controls since 1983. His book, Edaphos: Dynamics of a Natural Soil System, examines ways in which Sachs believes human beings are linked to the ecosystem, and how that link determines the future of civilization. To order Edaphos, call (802) 222-4277.*



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# Map property for easy scouting

■ Dr. Ron Smith of the North Dakota State University extension uses this kind of property diagram in a local IPM program. Modifications are made as needed for each customer.

## PLANT LIST

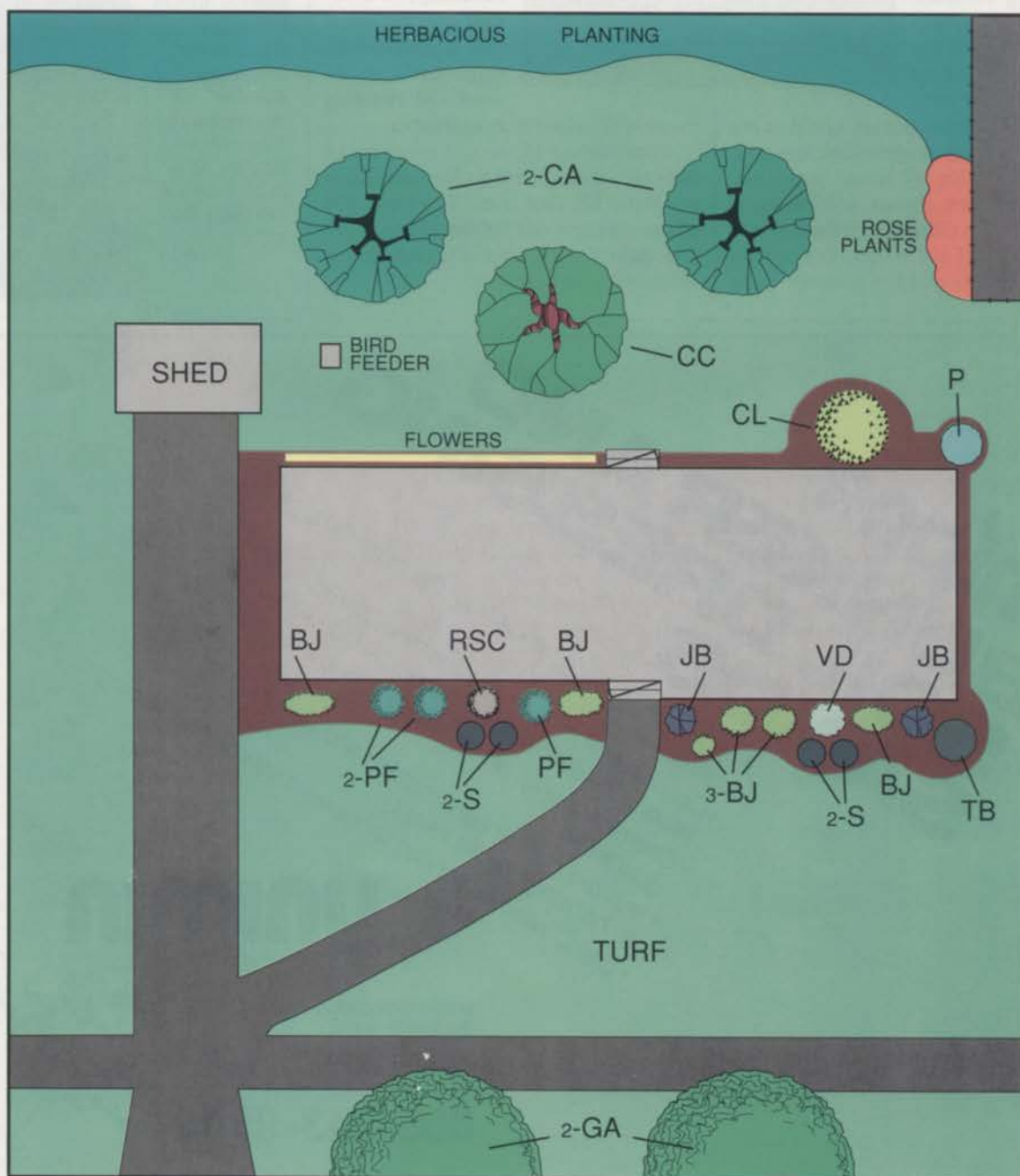
### TREES

- CC - CHOKEBERRY
- CA - CRABAPPLE
- GA - GREEN ASH
- CL - COMMON LILOC

### SHRUBS

- BJ - BLUE CREEPING JUNIPER
- JB - JAPANESE BARBERRY
- PF - POTENTILLA FRUTICOSA
- S - SPIREA

- P - PHLOX
- TB - TALLHEDGE BUCKHORN
- RSC - REDLEAF SANDCHERRY
- VD - VARIEGATED DOGWOOD





# Baited traps monitor insect populations, can predict outbreaks of pest activity

■ The most common use of chemical attractants is in traps to monitor insect populations.

Although not all of the compounds used in this manner are pheromones, many publications refer to all attractant-baited traps as pheromone traps.

For use in monitoring, chemical attractants usually are impregnated or encased in a rubber or plastic lure that slowly releases the active component or components over a period of several days or weeks.

Traps containing these lures use an adhesive-coated surface or a funnel-shaped entrance to capture the target insect. Traps for some pests are coated with an adhesive that also contains the chemical attractant.

Attractant-baited traps are used instead of or in addition to other sampling methods for two major reasons.

First, these traps are very sensitive and may capture pest insects that are present at densities too low to detect with a reasonable amount of effort using other inspection methods. This attribute can be extremely important when the goal of a sampling program is to detect foreign or "exotic" pests as soon as they enter an area so that control measures can be initiated immediately.

Second, traps baited with chemical attractants capture only one species or a narrow range of species. This specificity simplifies the identification and counting of target pests.

Sensitivity and specificity make attractant-baited traps efficient, labor-saving tools.

Attractant-baited traps are used in monitoring programs for at least three purposes:

- to detect the presence of an exotic pest, which is an immigrant pest not previously known to inhabit a state or region;
- to estimate the relative density of a pest population at a given site; and
- to indicate the first emergence or peak flight activity of a pest species in a given area, often to time an insecticide application or to signal the need for additional scouting.

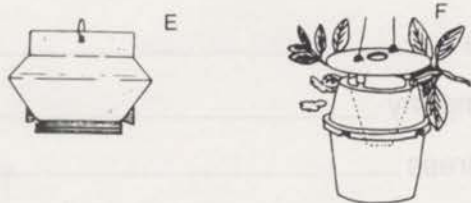
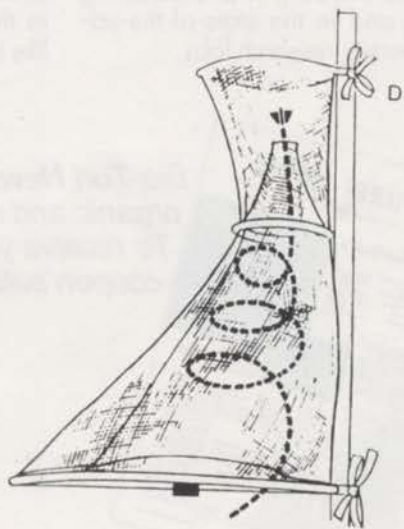
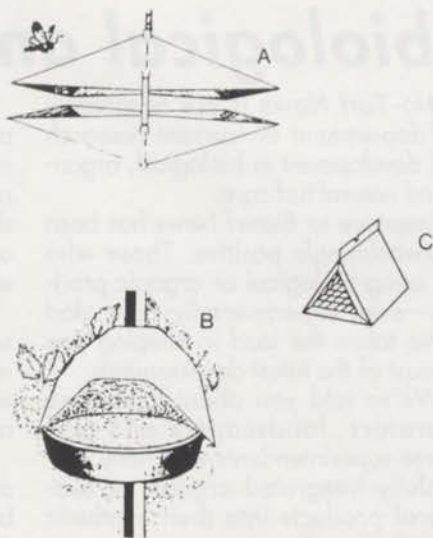
The use of traps to detect exotic pests has been demonstrated in widely publicized efforts to detect and eradicate pests such as the gypsy moth and the Mediterranean fruit fly whenever infestations are detected in new areas.

Although attractant-baited traps give an indication of pest density, several factors make the interpretation of density estimates complex and difficult. First, environmental factors affect trap catches. Temperature, rainfall, and wind speed and direction influence attractant release from lures and insect flight. Many insects fly and respond to baits only at certain times, such as dawn, midday, dusk, night, etc. and then only if temperatures at that time exceed a minimum level (often 50° to 60° F).

Wind speed and direction determine the extent of insect movement from surrounding areas to traps within a field or orchard.

Further complications can result from the fact that almost all attractant-baited traps are used to capture adult insects.

Attractant-baited traps can be used to signal the need for additional sampling efforts for to time insecticide applications and eliminate unnecessary spraying.



Commercially-available traps used for monitoring insect populations include: (A) the "wing" trap; (B) the water pan trap; (C) the Delta trap; (D) the Heliothis trap; (E) the Perocon II trap; and (F) the funnel trap. Other designs are available.



# BIOTURF NEWS



## Bio-Turf News: For the latest in organic, biological and natural landscape care

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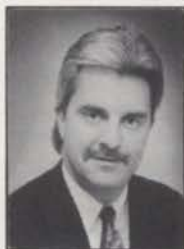
You've read about what's happening at the leading manufacturing facilities, and in the state-of-the-science university research labs.

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**Terry McIver**  
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## High-end services at low-end prices

**Because of the way NatureScape is run, it can adjust to the needs of its clients.**

by James E. Guyette

■ Proper advance planning with low overhead, attention to details, and better rates than the competition are the marketing ploys of NatureScape, a full-service landscaping company in South Euclid, Ohio.

NatureScape clients all know that "you don't always have to pay a high price to get high quality work," owner Jil Morgan explains.

She won't discuss prices—citing competitive reasons—but Morgan does reveal that she strives to shave 20 to 30 percent off the going rates within the area.

Savings are garnered through a number of methods, such as running the operation from a garage and her home rather than renting expensive office space. Morgan's high level of experience also contributes to more efficiency, she says. She has a degree in landscape construction/contracting, with studies in urban forestry, from Ohio State University; plus, she's worked in the industry for 10 years.

Another money-saver is a strong word-of-mouth network which helps her locate the two to five extra employees used each spring and summer. "We can't afford to hire someone with several years of experience," Morgan explains, "but if it sounds like they know what they're doing, we'll give them a shot."

A sound training system helps too, says Morgan: "We like to show them the way I

was taught."

**No mow and go**—Morgan stresses that high quality work at a fair price usually just means going beyond the typical "mow-and-go" attitude sometimes found in the industry. "We give more for the money," she notes. "If it only takes a minute to help the customer out, we go the extra step."

That attitude is instilled throughout every task NatureScape undertakes. While on a property, "we'll walk around with a bucket and pull dead leaves out of plants."

The extra steps so often overlooked by competitors may include something as simple as carrying customers' full garbage cans out to the curb. "We know that every Wednesday, the trash goes out."

NatureScape's marketing niche is offering specialized full-service care to smaller properties—especially those belonging to older residents. "Senior citizens can't get out there and mow lawns and cut up sticks," Morgan explains, adding that NatureScape has always included such factors in its business plan.

"We usually are prepared for anything that happens, and we're flexible," says Morgan. "Because of the way the business is run, we can adjust to the needs of our clients."

Such services tend to be greatly appreciated, and they were especially welcome after the area was ravaged by a massive summer storm.

**Riding it out**—The Cleveland area's "Great Storm of '93" last August lasted less than 10 intense minutes. The driving rain and howling wind gusts exceeding 100 mph created the most massive power outage in the history of the local utilities. Huge trees were left toppled atop houses, and residents were literally left in the dark.

Proper advance planning meant that NatureScape crews could provide quick response time, which pleased current clients and helped pick up some new ones.

"There were branches and sticks all over. It was a real mess," Morgan remembers. "When we went out on our jobs we took the chain saw, pruners and other equipment with us."

Discounts of 10 to 20 percent were automatically granted to long-term customers or to those who had offered referrals. "We tried to help out," she says.

Not a single stick was left by NatureScape clean-up crews. "Being female, we like to look at the little things," says Morgan of the company, which is owned and operated by women.

Not surprisingly, clients' neighbors noticed this treatment and approached NatureScape for even more work, including future design and installation jobs.

—The author is a freelance writer specializing in the green industry. He is based in South Euclid, Ohio.

## Slowing down money leaks

by Dan Sautner  
Padgett Business Services

■ As a business owner, only you can control how the business operates. Part of this control relates to corporate finances.

Any company is like an old row boat, with a large number of small leaks. Each leak in itself is not important or dangerous to the well-being of the craft, but the sum of many leaks leads to disaster. As a business owner, you have to have a way to watch for the leaks, and a way to stop them.

**Cash**—The best type of cash is the cash coming into your business. Part of your business must include some kind of system to record sales and account for cash receipts. Beware of cash-over and cash-short situations. At the very least, these are indicators of poor customer service; at the worst, they are signs of an organized attempt by dishonest people to remove your cash.

**Inventory and supplies**—The next area of control is in the supplies and inventory that you have on hand. A steady gross profit margin is usually the easiest control to have, and this is achieved through regular inventories and a monthly profit-and-loss statement.

If you have a consistent and stable gross profit margin, then you are likely in

*continued on page 44*





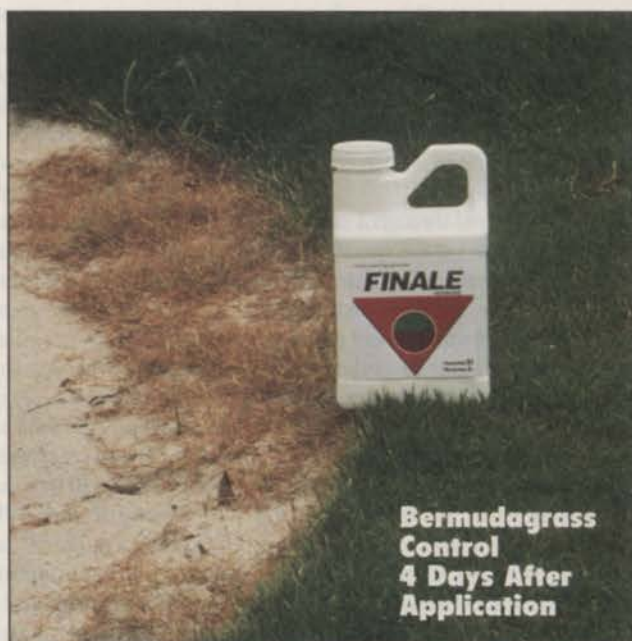
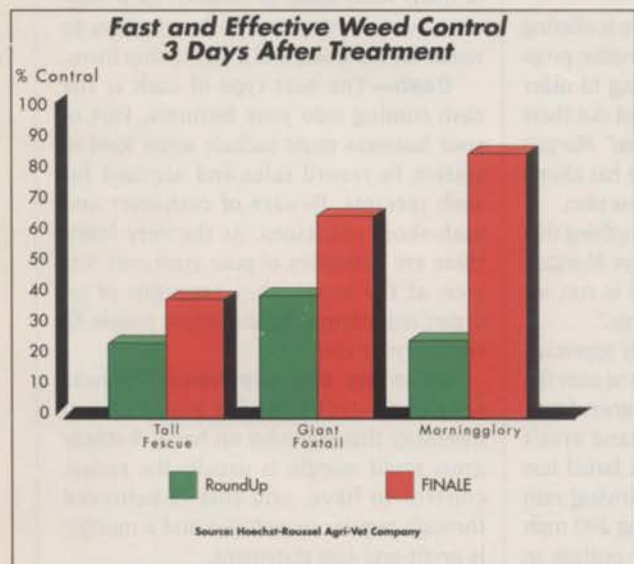
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## LEAKS from page 41

control of your inventory. Keep your storeroom neat, organized and secure, with limited and controlled access. Keep track of the supplies that you use so that abnormal usage can be spotted. Make sure that your employees understand that shrinkage will not be tolerated.

**Purchases**—Pay only for goods and services actually received. Inform your vendors that orders can only be placed by authorized personnel, and thoroughly

check every shipment of goods you receive. Ensure that you are receiving what you ordered and it is in acceptable condition before you sign the receipt.

When studying your invoices, double-check the mathematics. These computer print-out bills can look very formal and correct, but check the addition and cross-multiplication. Computers may not make a mistake in adding, but programmers sometimes make mistakes on the instructions that they give.

Pay attention to goods purchased. These may or may not be subject to sales tax, so careful attention can save money.

**Pay bills on time.** While this may not be the time on the invoice, set a policy that your cash flow can live with. Always match the received date to the invoice date and take the later of the two. Set aside a specified time to do this task. Try not to hastily pay a bill because someone is trying to exert pressure. Paying bills results in money leaving your business, and this is the worst kind of money.

**Sales**—Because so little of the total sale actually ends up in net income, little mistakes can hurt you. Make sure that all services are billed. It is often easy to overlook that small item, especially if several employees were involved in providing the service to the customer.

Have a system that records each service rendered, and make sure this reaches the final billing. At the billing stage, make sure that the bill is calculated properly. Few customers look for under-billings.

Periodically review your billings to check the math and services billed. If you have a number of people billing, make sure that you can track mistakes back to the right person.

**Summary**—The above hints can be classified into issues of completeness, accuracy and the authorization of every transaction your company makes. We appreciate that you cannot be there every moment for every transaction. You can, however, set up simple procedures for yourself and your staff. Ask yourself the following questions:

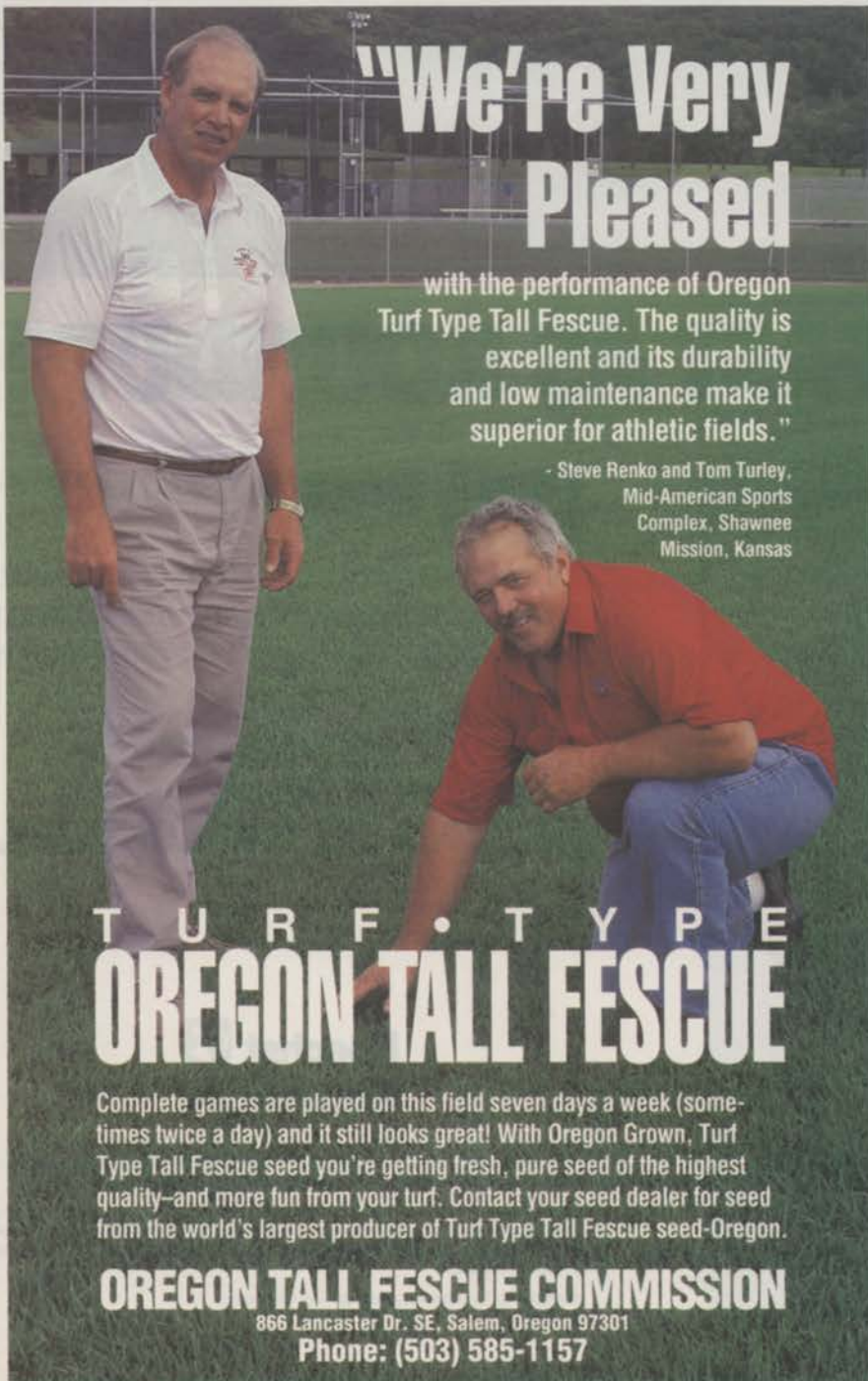
**1)** Are my sales complete and accurate? How do I achieve this within my system? Am I sure that every product and service delivered is at the price specified?

**2)** When I pay a bill, am I getting the services and products I ordered, for the price I agreed to, and have I fully received the billed items?

**3)** Am I keeping control of my assets? Am I getting full value for the resources I give away to improve my net income?

Take a moment to see if you can plug a few of those business "leaks." Do not fall for the temptation of thinking that if you have never had a problem, no problem will ever occur. Do not depend solely on people to catch mistakes, or to not make them in the first place. After all, making mistakes is what humans are all about.

—Dan Sautner is chairman of Padgett Business Services. This is the third of a series of articles on accounting Sautner is writing for LM.



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## "A SEVEN-DAY PREVENTIVE SCHEDULE OF DACONIL 2787® COVERS ALL THE BASES."



*Thom Martinek,  
Superintendent,  
Shaker Heights  
Country Club  
Cleveland, Ohio*

From the Great Lakes to southern regions, for bentgrass turf, a little Daconil 2787® Fungicide from ISK Biotech Corporation goes a long way.

That's certainly true for Thom Martinek, course superintendent at the 80-year-old Shaker Heights Country Club located in that prestigious neighborhood near Cleveland, OH. He's used a seven- to ten-day

schedule of Daconil 2787 Flowable Fungicide at low label rates for more than a decade. And the result? Throughout the season, Leaf spot, Dollar spot, Brown patch and even algal scum are kept well under control.

### Seven-day schedule

"We've been successful with this program for years," Thom says. "Daconil 2787 is a good contact fungicide, but with daily mowing, frequent irrigation and that sort of thing, you're bound to lose some of it. So, from a preventive standpoint, I like to use a seven-day schedule at the very lightest end of the recommended rates." In warm, wet weather, though, when

disease pressure is highest, Thom uses Daconil 2787 at higher label rates, or tank mixes with systemics.

While the course at Shaker Heights Country Club is short — just 6300 yards — it has a reputation for tough, tight holes and fast, subtle, undulating greens. With bentgrass turf throughout, Thom knows he can't take shortcuts on maintenance.

### Cornerstone for disease control

Ask him, and Thom will tell you he doesn't see much disease. This he attributes to using Daconil 2787 as the cornerstone of his preventive disease control program. He doesn't have to worry about resistance, either. That suits his conservative nature just fine.

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# POINT AND CLICK:

■ You own a landscaping business and need to send a personalized advertising letter to customers describing a new maintenance service. What's the cheapest and simplest alternative?

It's income tax time and you must know the exact amount of your profits, losses and outstanding debts in order to file an honest return. How can you do this easily and quickly?

Your business badly needs a new truck and other expensive landscaping equipment. How can you easily figure all costs and correctly estimate the probable return on investment?

The answer to all such problems—and more—can be summed up in three words: *use a computer.*

And today, it's not hard to learn from scratch how to use computers. With the advent of recent user-friendly programs using Windows and Macintosh technology, mastering computers is not nearly as difficult as it was 10 years ago. Today, instead of having to enter long strings of command characters to get your computer to perform a function, in many instances all you have to do is click a mouse on an icon and voilà!

But if you, like many other people in the green industry, are still reluctant to conduct a foray into the computer world, these answers to some questions can help.

## 1) What can a computer really do to improve my business?

In addition to finding solutions to problems such as the above, it can control your inventory; keep accounts receivable and payable in order; help hire employees and check their work; analyze, promote, and design your ads; and check your profits.

Also, if you purchase a modem and subscribe to an on-line information service like Prodigy, you can be on-line with other computer users and share a variety of information that can be valuable in your day-to-day operations.

## 2) How can I learn more about computers?

● First, check out a book from the library. Master "computerese" so you can understand descriptions concerning what a computer can and cannot do, and how.

● Take some lessons on how to use a computer. Some are offered by computer dealers, others can be scheduled through your local junior or community college or adult education classes.

● Study computer magazines such as *Byte* and *Info World*. There are also periodicals for owners of specific computers such as

*PC World* for the IBM PC and *MacWorld* for the Apple Macintosh. They're available at many libraries.

● Join a computer-oriented club whose members already own computers. These people will usually be glad to answer any questions you might have.

## 3) Where should I shop for a suitable computer?

Check local retail computer stores. Discuss your business and its needs with a knowledgeable salesperson. Take

careful notes, making sure you cross-reference the computer name with additional components you might need, tasks it can handle, price and other data. Shop around!

## 4) What questions are important to ask before selecting specific computer software?

● Is it easy to understand and follow what appears on the screen?

● If offered a computer package, does it include a double-entry system?

● Can all transactions be tracked easily so that mistakes can be found and corrected quickly?

● Is there a built-in safeguard that will save information when mistakes are made?

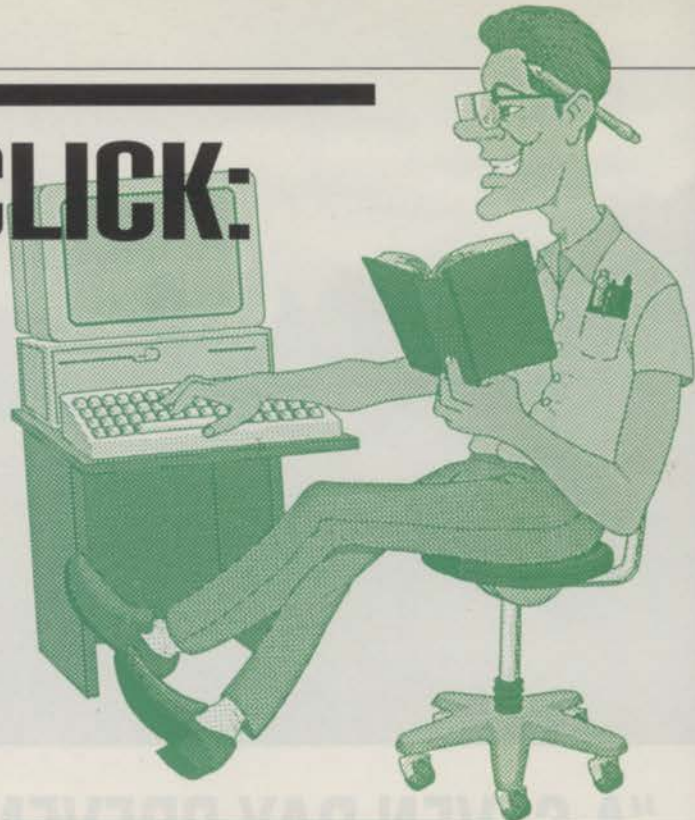
● Can you purchase one program and add to it as your expertise develops?

● Will the manufacturer continue to improve its software and offer it as part of its computer service?

● Does the company support its software with trained personnel, seminars, user manuals and a hotline number?

● Is the manual easy to read? Does it contain diagrams, charts and a troubleshooting guide?

● Does the company offer a guarantee which fully covers the product if you're not



## powering your business with the new computers

completely satisfied?

## 5) What important questions should be asked before selecting specific computer hardware?

● Will it operate the software you've selected?

● Does it have at least 64K of memory, expandable to at least 125K?

● Does the disk system have the storage to make the whole system run rapidly while allowing for future growth?

● Does the screen have 80 characters, which allows it to show all the information you need to see?

● Is the keyboard typewriter style?

● Is there a number pad to make accounting entries easier?

● Is the computer able to accept the type of printer that will yield the kind of finished work you need?


## 6) About how much should I pay?

Since prices are now at an all-time low, many business people feel that computerizing their businesses as an experiment can be worth a possible loss, which can be written off later. (However, such losses are rare.)

—Bess Ritter May



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a lot less and still get excellent results.

Here's an example. Mixing insecticide with insecticidal soap can reduce the amount of insecticide you need on your ornamentals by about 50 percent. Soap controls

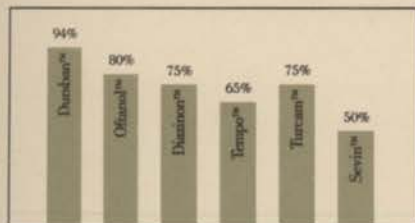
most soft-bodied insects and mites. By adding insecticide, you'll also take care of tougher insects, like scales and worms. University studies suggest you may get better control than you get with insecticide alone.



# A few ways to balance with your love for the env







Studies show that Dursban delivers better chinch bug control at lower rates than other insecticides.

Knowing exactly when to apply insecticide helps, too. One way to monitor mole crickets, chinch bugs, webworms and cutworms is by mixing 1½ oz. of dish soap in two gallons of water and sprinkling it

even controls fire ants.

And Dursban also gives you plenty of application flexibility. It's available as a liquid, dry flowable, wettable powder in water soluble packets, granule, fertilizer or bait.

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# Turn your hate for insects into a better environment.

on a four-square-foot area of turf. If eggs have hatched, this soapy mixture will flush insects to the surface, and you can apply insecticide accordingly.

Your insecticide itself can also make a difference. After all, different insecticides work at different rates. Which is why Dursban<sup>®</sup> insecticide could be your best choice.



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### Why Adults Should Spend Time Catching Bugs.

If you want better results from the insecticide you use, insect traps can help. They allow you to find out when certain pest insects are present and time your insecticide applications accordingly. Insect traps are inexpensive, easy to use and they'll help you get greater control using less insecticide.



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## Spring fertilization

by J.B. Sartain, Ph.D.  
University of Florida

■ Early spring is a time to review your turfgrass fertilization program. Did your turfgrass flourish last season, or was growth poor with noticeable thinning? Was growth non-responsive to fertilization?

Poor turfgrass growth is often related to too much shade, cutting too low, or soil chemical properties. Knowledgeably selecting a turfgrass species for shade tolerance and proper mowing height can eliminate some common problems. Soil nutritional deficiencies, however—the topic of this month's cover story—can only be assessed through soil tests.

Turfgrass fertilization should be based on a recent soil analysis, but if an analysis does not exist, the nutritional requirements of the turfgrass can generally be met by applying 1, 1/4 and 1/2 lb. of N, P and K, respectively, per 1000 sq. ft. as an initial application.

These nutrients can be supplied by applying 6 lbs. of a 16-4-8 analysis fertilizer. It is recommended that this mixture be composed of approximately 70% slow-release and 30% soluble N sources. If the soil is prone to leaching losses, a K source with reduced K loss potential should be used.

**Nitrogen**—Turfgrasses need more nitrogen (N) than either of the other primary nutrients, potassium or phosphorus. Most soil testing laboratories do not test for N because this nutrient is highly mobile and is typically deficient in the

turfgrass rooting zone.

Some turfgrass species, such as bermudagrass grown on sandy soils, require relatively high rates of N application on an annual basis; other species such as bluegrass grown on clayey soils, require much less annual N. However, the early spring fertilization of turfgrasses on all soil types is generally similar, with initial application of approximately 1 lb. N/1000 sq. ft. being typical.

Using slow-release N sources permits increased rates of N application without the threat of turfgrass "burn," and can reduce application frequency from 30 days

grass cultivation over an extended time exhibit phosphorus (P) deficiencies. A Mehlich 1-extractable P level of less than 15 ppm is considered low, and indicates a probable response to applied P.

Shallow rooting, low turfgrass root mass in early spring, and cool soil conditions often influence P fertilization response more than actual soil-test P level.

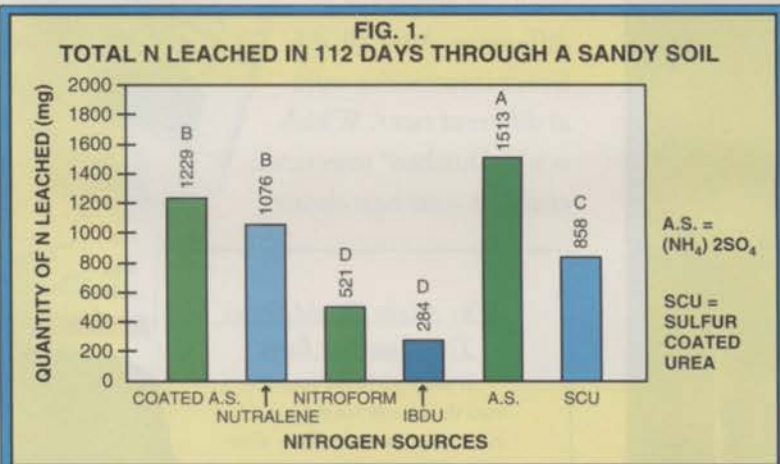
In long-term research, ryegrass positively responded to P fertilization, even though bermudagrass grown on the same phosphatic soil was negatively influenced by P fertilization. This suggests that cool-season turfgrasses can respond to P fertilization, even on soils testing high in P.

If overseeding is used in the turf management program, best response to P may be obtained during the cool-season turfgrass growth period. Early spring turfgrass growth may respond to P fertilization if the root mass of the warm-season turfgrass is restricted and the soil is cool.

Adequate fertilization can be achieved by applying 1/4 to 1/2 lb. P/1000 sq. ft., using any of the commercially-available P fertilizer sources. No differences in growth response to P fertilizer sources have been observed.

**Potassium**—Considerable confusion exists regarding potassium (K) fertilization. Turfgrasses accumulate approximately one-half as much K as N. In some turfgrass cultures, this represents a considerable quantity of K over an entire season, especially if the clippings are removed.

In sandy soils, K leaches readily and is rarely found at high levels. Turfgrasses



to as much as 90 days. A combination of slow-release and soluble N sources (70% slow-release, 30% soluble N) promotes optimum warm-season turfgrass growth.

Slow-release N sources are also less susceptible to N losses through leaching (Fig. 1). Soluble N sources tend to leach more in sandy soils than slow-release N sources. They should be used with care when large applications of N are made on an annual basis, particularly if groundwater pollution potential exists.

**Phosphorus**—Few soils used for turf-

### ELSEWHERE

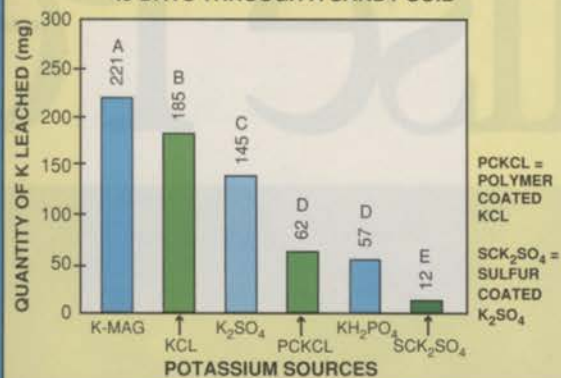
**Effectively  
pruning trees,  
page 51**

**Maintaining  
turf in shade,  
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**Shade-tolerant  
turf species,  
page 54**



FIG. 2. TOTAL K LEACHED IN 49 DAYS THROUGH A SANDY SOIL



growing on soils testing less than 35 ppm K by the Mehlich I test generally respond to K fertilizer application.

In the recent past, some turfgrass managers have decreased their N:K fertilization ratios from 2:1 to 1:1 and even 1:2 on the premise that K increases top growth, root growth and overall turfgrass quality. Recent research findings, however, do not support the concept of a "magic" N:K fertilization ratio, though they have supported the need for K fertilization of K-deficient soils.

Whether due to turfgrass species or soil and environmental conditions, turfgrasses requiring high rates of N generally require higher rates of K application. There is no real "magic" ratio, but the "historical" 2:1 N-to-K ratio appears to satisfy the needs of bermudagrasses and ryegrasses in the Southeast.

If the soil test indicates that K is needed, application of ½ lb. K/1000 sq. ft. during early spring fertilization, followed by re-application of the same rate every 90 days during the growing season, should adequately supply the K requirements of turfgrass.

Potassium sources differ in their leaching potential in sandy soils and iron-coated clay soils (Fig. 2). Potassium-magnesium sulfate contributes larger amounts of K to the leachate than the other K fertilizer sources. This is attributed to the stronger attraction of Mg than K by soil exchange sites. In general, potassium sulfate leaches less than K potassium chloride whereas, mono-potassium phosphate, a relatively new turfgrass K source, leaches almost no K. Coated K sources also leach K relatively slowly.

**Calcium**—Turfgrasses can obtain calcium (Ca) from a number of different sources, including exchangeable soil Ca, liming materials and fertilizer sources.

Soil deficiencies occur most frequently in sandy soils, acidic soils (pH less than 5.0) or sodium-saturated soils (rare). True Ca deficiencies are very uncommon in turfgrasses.

**Magnesium**—Turfgrasses growing on soils testing below 20 ppm Mehlich I extractable magnesium (Mg) usually respond to Mg applications. A Mg deficiency prior to spring growth can be corrected by applying dolo-

mitic lime (if required for soil pH adjustment), magnesium sulfate, or potassium-magnesium sulfate.

Application of 4 lbs. Mg/1000 sq. ft. should correct the deficiency for an entire growing season. Annual monitoring is recommended if a deficiency has been noted.

If the soil Mg status is marginal, high rates of K fertilization can induce Mg deficiencies. There is no "magic" Ca:Mg ratio required in soils for optimum turfgrass growth; rather, the absolute soil test Mg level is of paramount importance.

—The author is in the Soil and Water Science Department at the University of Florida.

## Pruning tips for aesthetics, tree health, from Dr. Wade

■ "The key to pruning is knowing the difference between heading and thinning," says Dr. Gary Wade of the University of Georgia. "Thick, dense canopies increase disease and insects, and the plant uses more water."

Wade, in a presentation at the Georgia Turfgrass Conference, told the audience to try and maintain nature's natural plant shape when pruning. You should try to cut right outside the branch collar, and not leave stubs. "When pruning is done properly, there is no need to paint or dress wounds," he noted.

Pruning should be done with a purpose, he said, and should be done "with low maintenance in mind."

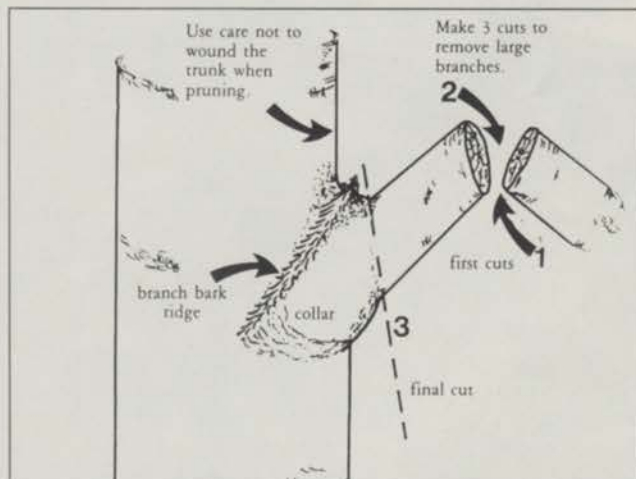
Why prune at all? For various good reasons, including:

- To restore the shape of a tree that is out of proportion.
- To eliminate safety hazards from dead, split, broken and low branches.
- To stop possible interference with electrical lines.
- To reduce potential breeding sites for insects.
- When transplanting, to establish a strong scaffold structure.

In addition, here are Wade's reasons to

prune:

- To maintain the correct size of the plants. This is a common problem with residential landscapes.
- To improve flowering or fruiting performance.
- To repair what Mother Nature has inflicted upon us.
- To rejuvenate plants in the dormant season.



- To increase ornate value in high-priced landscapes.

Some Wade tips:

- Prune six weeks before the start of the new growing season.
- Do not severely prune boxwood or conifers (pine, spruce, junipers).
- Prune in stages over two to three years, if possible.
- Be careful pruning crepe myrtle, the most abused plant in our landscapes.



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# Turfgrass management in shady areas of lawns

by Joseph M. DiPaola, Ph.D.  
North Carolina State Univ.

■ Like all plants, turfgrasses need light to grow, at least four hours of full sunlight per day.

Trees with dense crowns cast a deeper shade than trees with more open canopies. Deciduous trees selectively filter the sunlight, casting a "green shade" that is low in the parts of the light spectrum that are most important for lawn growth (blue and red light). Coniferous trees have a shadow that is largely unfiltered and block less light because of their needle-like leaf shape, more open canopies and narrow shapes.

Sunflecks are pockets of sunlight that penetrate the tree canopy and move across a turf. They greatly increase the ease of managing turf under shaded conditions. Sunflecking can be increased by opening the tree canopy through selective pruning. Dead and diseased limbs are good candidates for initial removal.

Shaded areas:

- ✓ are more humid,
- ✓ have restricted air flow,
- ✓ have fewer dews that "burn off" later in the day, and
- ✓ are cooler during the summer and winter months.

In response to this altered environment, turf in shade has:

- ✓ a more upright growth,
- ✓ lower food reserves,
- ✓ a more shallow root system,
- ✓ a decreased stand density, and
- ✓ a more succulent shoot tissue.

Overall, shaded turf is less able to compete with weeds and pests. On the other hand, some weeds, like crabgrass and goosegrass, also grow poorly in shaded conditions and are less of a problem.

Turf, particularly warm-season grass, often suffers more winter injury in shaded settings. Under shade, a lawn's vigor and wear tolerance is reduced. Increased humidity, restricted wind movement and the longer duration of dew all enhance the

potential for lawn disease in the shade.

**Shade tolerance**—Diseases—like powdery mildew, brown patch, leaf spot, melting out and Fusarium blight—are a dominant factor limiting turf survival in the shade. Within a species, shade tolerance can range from poor to excellent, depending on the cultivar. Excellent shade tolerance does not ensure survival or acceptable performance.

Deeply shaded sites will not support a quality turf. In these settings, managers should consider using groundcovers and landscape mulches. If turf is necessary, pruning and/or removing trees may be needed to allow greater light penetration.

Many years ago, turf scientists demonstrated that shade disease problems were reduced when mixtures of turfgrasses (e.g. Kentucky bluegrass and fine fescues, tall fescue and Kentucky bluegrass) were used. Tall fescue has a much finer leaf blade under shade than in open sunny areas and has performed well in mixtures with Kentucky bluegrasses (80:20 or 90:10 by weight) or with Kentucky bluegrass and fine fescues (80:10:10 by weight).

Among warm-season turfgrasses, St. Augustinegrass is clearly the most shade tolerant, with the exception of Floratam.

—The author is a member of the turf faculty at North Carolina State University. This article originally appeared in the winter/92-93 issue of the North Carolina Turfgrass Council newsletter.

## Shade tolerance of selected turfgrasses

**Kentucky bluegrasses:** *Good*—A-34, Georgetown, Glade; *Moderate*—Adelphi, America, Bristol, Enmundi, Fylking, Midnight, Nugget, Ram I; *Poor*—Birka, Columbia, Eclipse, Mystic, Sydsport, Touchdown.

**Fine fescues:** *Excellent*—Aurora, Biljart, Reliant, Scaldis, Sparta, SR3000, Waldina; *Good*—Center, Enjoy, Highlight, Jamestown, Shadow, Victory, Waldorf; *Moderate to poor*—Commodore, Flyer, Fortress, Pennlawn, Pernille, Robot, Ruby

**Perennial ryegrass:** *Good*—Allstar, Birdie II, Cowboy, Elka; *Moderate*—Gator, Palmer, Pennant, Repell; *Poor*—Yorktown II

**Roughstalk bluegrass:** *Moderate*—Laser; *Poor*—Sabre

**Tall fescue:** *Excellent*—Trident; *Good*—Adventure, Apache, Arid; *Moderate*—Finelawn I, Hounddog, Jaguar, Bonanza, Falcon; *Poor*—Pacer, Rebel, Rebel II, Mustang, Olympic

**St. Augustinegrass:** *Excellent*—common, Roselawn, Bitterblue, Floratam, Floratine, Raleigh

**Zoysiagrass:** *Moderate*—Belair; *Poor*—Cashmere, Emerald, Meyer

**Bermudagrass:** *Poor*—common, Vamont, Tifway

**Bahiagrass:** *Moderate*—Argentine, Pensacola

**Centipedegrass:** *Good*—common, Oaklawn, Tennessee Hardy, Centennial

## Shade management tips

1) Select shade-tolerant cultivars. A groundcover may be necessary for deeply-shaded locations.

2) Use mixtures or blends of cool-season turfgrasses when renovating or establishing the site.

3) Improve the air flow across the landscape by removing trees and ornamentals which obstruct wind movement.

4) Prune lower tree branches to improve light penetration.

5) Selectively prune upper tree limbs to improve light penetration.

6) Increase your lawn mower's cutting

height by ½ to 1 inch.

7) Prune tree and ornamental roots using spades or edge the lawn with a trencher periodically. Do not remove more than half of the viable roots beneath the drip line. Some trees are sensitive to root pruning; check before beginning this work.

8) Reduce traffic on the lawn.

9) Promptly remove fallen tree leaves and clumps of mowing clippings.

10) Water deeply and infrequently. Avoid late afternoon and evening irrigation, which promotes disease.

11) Minimize nitrogen fertilization and maximize potassium fertilization.

12) Apply fungicides, when necessary, to check disease outbreaks.

13) Leave a two- to four-foot turf-free zone around small trees to improve their growth.

14) Provide broadleaf weed control and watch for encroachment by difficult-to-control weeds.

15) Keep soil pH adjusted.

16) Fertilize trees separately and at rootball depth.

—J.M.D.



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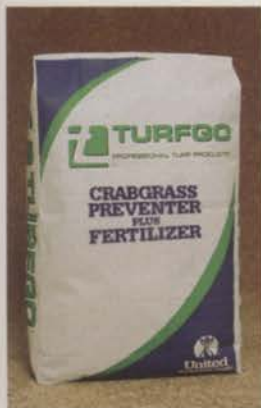
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# GOLF 'SCAPING

## An open space forever & ever

■ The Merit Club in Gurnee, Ill. has received a singular honor: its 320 acres have been granted a government easement, preserving it as open space for perpetuity.

The gently rolling course, owned by Bert Getz, includes 30 acres of wetlands, a 30-acre savannah and a two-acre tree nursery. One thousand, four hundred of the course's 2,200 trees are holdovers from the original site.

"When I decided to convert our family farm into the Merit Club, the goal all along was to save the scenic and natural character of the land," says Getz. "I've owned the property for 25 years and didn't want to see it paved or roofed over. Granting a conservation easement completes my efforts to save the site's beauty for future generations."

Developers had originally approached Getz about building an 1,800-home luxury golf course community on his property.

He decided to keep just 100 acres and to allow a small subdivision to be built on another 100 acres.

"I wanted to do something right," Getz told a reporter for the *Chicago Tribune* last year, "and not let the almighty dollar make the decision."

Getz began working with GorLands, a corporation for open lands and an affiliate of Open Lands Project, to establish the easement in 1991. Details were finalized



### Developing a 'unique piece of property' attracted veteran superintendent Oscar Miles to the project.

last fall. "The Merit Club is a particularly exciting project for CorLands," says director Tom Hahn. "Not only is it a model in environmentally-sensitive golf course design, but it also sets an example for other owners who realize that the open space their courses provide in areas of rapid growth is invaluable."

The easement eliminates any commercial office or residential development on the site. Buildings may only be constructed in two designated "maintenance" and "club house facility" zones (totaling 15 acres) and must be directly related to operation of the golf course. If golf course operation ceases for any reason, the land must remain open and be allowed to revert back to its natural state. These restrictions apply even if the land is sold.

▲ The Merit Club land contains 2,200 trees, 1,400 of which are native to the area.

Photo by Henry C. Schwenk

**A 'super' challenge**—Course superintendent, Oscar Miles—a superintendent for 32 years—says he accepted the position at CorLands after he realized that here was an opportunity that doesn't come along often: a chance to develop "a unique piece of property." Miles was involved the project from the planning stages, and he and his men did the landscaping finish work.

"Each hole is a corridor," says Miles. "We think in terms of one hole at a time, from tee to green."

Pennlinks, Penneagle and Penncross varieties are used at CorLands. The turf from tee to green grows from two inches to six inches, to one-foot high roughs. Natural grasslands grow as high as four feet.

The course includes a sod nursery, and Miles recently began a native tree nursery.

### ELSEWHERE

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the verdict is in,  
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on golf publication,  
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## Rolling greens: is it a help or a hindrance?

■ Rolling putting greens to enhance green speed has been practiced for a number of years.

Advanced lighter rollers that are not so prone to compacting the turf have re-ignited interest in rolling—especially on sand-based greens.

Last summer, a study was conducted by Drs. Karl Danneberger, Ed McCoy and Thomas Parobek at Ohio State University.

Two locations with different construction methods were used. The first was a 21-year-old USGA-constructed Penncross green. The second site was a 10-year-old Penncross turf established on native Brookston silty-clay loam.

Both sites were mowed at 5/32nds of an inch with a John Deere walk-behind mower. Rolling was done with a Toro Greensmaster 3000 with rolling units.

What they found out, as reported in a recent edition of OSU's "Turf News:"

● As measured by a stimpmeter, rolling increased green speed significantly on both USGA and native soil greens compared to the non-roll control.

On the USGA sand green, rolling increased green speed between 5 and 11 inches compared to the control. On the native soil green, speed increased between 5 and 13 inches compared to the control. (However, increasing speed with successive rollings was not observed on the native green, as it was on the USGA green.)

● Comparison of stimpmeter readings of the rolled vs. control plots immediately preceding the rolling treatment revealed no difference in green speed on both the USGA and native soil greens. From these data, it appears that rolling increases green speed, but the effect lasts no longer than 24 hours.

● Rolling had no effect on water infiltration over the duration of this study.

● Rolling negatively affected the overall visual quality of the turf. Rolled plots were more off-color and showed some wear.

The conclusion the research team reached was this:

"Rolling for a short duration is a means of increasing putting green speed with minimal detrimental agronomic effects. However, the long-term use of rolling may be detrimental to the turf."

## GOLF COURSE MAINTENANCE

### Deadline extended for book

■ "Superintendents' Handbook for Golf Course Maintenance & Construction" has extended its deadline for submission of entries until April 10th. Entries which are received will then be used to develop chapters on topics such as putting greens, fairways, roughs, wildlife management, equipment, IPM, etc.

"Contributions at all levels, from superintendents across the country, have been received," says editor Dr. Trey Rogers of Michigan State University. "This is an excellent opportunity to give back to the industry, and to receive full recognition, now and forever, in a published form."

Contributions should be one to five pages in length and include photos. To receive a contribution packet, please write: "Handbook for Superintendents," P.O. Box 799, Okemos, MI 48805-0799.

### Weekend crews work

■ Frank Siple, golf course superintendent at Royal Lakes Golf and Country Club in Flowery Branch, Ga., believes in hiring part-timers for weekend maintenance work. That allows his regular crews the weekends off.

Writing in "Thru the Green," Siple says:

"We have found a better attitude on Monday mornings. Employees don't seem to be as tired, stressed out or over-worked. The weekend break acts as a buffer or even a mini-vacation, which we all need.

"Second, many overtime hours are cut out of your budget. This savings can be thousands of dollars a year. This money could be used to hire another summer crew member or simply help to lower your budget."

Quite obviously, the weekend employee will also be paid less than a regular full-time employee, further saving money.

Finally, the weekend crew can serve as a "feeder" system to your regular roster. "These employees may show skills and interest for a full-time or summer position," Siple says.

One more hint from him: you might want to hire an extra weekend person so that crew members can rotate weekends off.

"It works for me," Siple says.

### GCSAA honors pair in Dallas

■ Allan MacCurrach and John J. Spodnik received this year's Distinguished Service Awards from the Golf Course Superintendents Association of America at the opening session of last month's GCSAA conference and trade show in Dallas.

"On behalf of our members, the GCSAA board of directors is very pleased to honor these two gentlemen," said President Randy Nichols. "Allan's and John's careers embody the highest traditions of this award."

As senior agronomist for the PGA Tour, MacCurrach makes advance agronomy visits to sites for Tour, Senior Tour and Nike Tour events. He also assists Tournament Players Club superintendents in developing their agronomy programs. He has been a GCSAA member since 1962.

Spodnik has been superintendent at Westfield Country Club in Westfield Center, Ohio, for 34 years as it grew from nine to 36 holes. He has been secretary/treasurer for the Northern Ohio GCSAA chapter for 34 years. He has been a GCSAA member for 35 years.

The GCSAA also gave its Leo Feser Editorial Award to Thomas A. Christy of Riverside Golf & Country Club, Portland, Ore. The award is presented annually to the author of the best article published in the association's magazine. The article for which Christy received his award was "Redesigning Equipment Washdown Pads," which appeared in the April, 1993 issue.



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# Fertility management of sand as a growing medium for greens grass

by James Latham  
USGA Green Section

■ The development of high sand content sports fields and golf greens has been heralded as a major step toward the multi-purpose, all-weather use once thought possible only with artificial turf. It seems, however, that these rugs have as many problems as natural turf—except inside domed stadiums.

The sands are far from foolproof; finding the right components for a mixture does not end problems in a sand-based program. Fertility management can be difficult, and the related problems as insidious as any faced by a turf manager.

The major problems are related to high leaching potential, low cation exchange capacity, nutrient balance difficulties and other problems with pH levels. These, however, were considered worthwhile trade-offs when compared to problems associated with easily-compacted, poorly-drained (and aerated) soil mixtures used in the past.

High-sand growing media are supposed to support traffic and drain readily. That same porosity makes nutrient retention quite difficult, and nitrogen is particularly subject to loss due to the very nature of the

sandy substrate. Ammonium ions ( $\text{NH}_4$ ) are rapidly converted to nitrate ions ( $\text{NO}_3$ ) in the well-aerated sand. The nitrates have no physical attraction to negatively-charged soil or organic matter and are readily washed out of the rootzone by the sand's high permeability.

**Slow-release?**—At first, this leaching loss indicates that slow-release nitrogen sources are natural for growing turf in porous media. This is not always the case, since sand is essentially sterile or at least has a small population of micro-organisms.

The release of nitrogen from sources requiring microbiological breakdown is, consequently, slow for a while. These

products are ureaformaldehydes, methylene ureas, process tankages, sewage sludges, etc. Encapsulated particles, IBDU, etc. are not so limited.

The restricted release does not last long, but must be considered in the early stages of use. Combinations of soluble and insoluble nitrogen sources produce the best results until the micro-organism population grows.

Another difficulty is low cation exchange capacity. We have lost the forgiveness of the soil.

Clays and organic matter had a tremendous capacity to absorb cationic nutrients, which reduced leaching loss. In sand/peat mixtures, however, the total cation exchange capacity is around five, and that means that this mode of nutrient reten-



Fertility of high-sand content soil is difficult, since you lose 'the forgiveness of the soil,' Latham contends.

tion is very low.

Additionally, the normally weak adsorption of potassium on clay or organic matter is readily overcome by irrigating with hard water, which contains high concentrations of calcium and magnesium ions.

Furthermore, we have always heard that phosphorus does not leach but accumulates in the upper rootzone. This does not occur in sands. The phosphates go right on through—just like the nitrates.

Trace elements may be lost in the same way, but the manner of their availability is not as clear because the chemistry of these nutrients has not been worked out in this medium or with turfgrasses.

**pH problems**—One of the most con-

founding problems with sand relates to its pH. We usually expect sand to have a neutral pH of 7.0, but this is seldom the case—at least in the central U.S. Soil tests show pH levels up to 8.0 or more, indicating high calcium levels.

Sands with alkaline reaction are subject to close observation and careful application of trace elements thought to be needed. In most cases, it is iron.

These nutrients should be applied individually to determine the turf's reaction. Shotgun mixtures are not recommended because of potential toxicity from over-applying the wrong nutrient. But don't forget that the alkalinity also offers some protection against toxicity due to excess copper and zinc levels.

Nutrients should be applied as in hydroponic gardening until the root system is well established and has cycled through death and re-establishment of new roots several times.

The residual left by dead roots has the best potential for maintaining nutrient stability throughout the rootzone. It also provides the nutrition needed to develop adequate populations of beneficial organisms. Only then can a stable plant community be established and nutrient balance based upon a well-established fertility management program be developed.

**Water watch**—One final word of caution on the possibility of contamination.

These growing media with little or no buffering capacity are susceptible to contamination by poor chemical water quality, overuse of pesticides, and even silting in by dust storms or muddy water.











All in all, sand as a growing medium for turf is a major advance in our field. It is imperative, however, to select the sand carefully, approach nutrition programs with knowledgeable caution, and revise almost everything you've learned about turf management using natural soils.

Since we have lost the forgiveness of the soil, we must make up for the loss with a better understanding of the material with which we now work.

—This article originally appeared in the May, 1992 issue of "Hole Notes," the newsletter of the Minnesota Golf Course Superintendents Association. It is reprinted with the author's permission.





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# LAWN CARE INDUSTRY

## **Overhead: a vital part of profit-making**

**Consultant Charles Vander Kooi says you don't start making a profit until you pay 'the bill in the night.'**

■ When Charles Vander Kooi finally leaves this friendly world, he wants just two words chiseled onto his tombstone: "overhead recovery."

That's exactly what he told lawn care professionals at this past November's PLCAA conference in Baltimore.

### **Valuable pricing tips**

■ Every contractor should review their pricing system to see if it meets the following four criteria, says business consultant Charles Vander Kooi:

1) Does it give the owner the ability to know where every dollar that is spent comes back to the company through its prices?

2) Is it able to compensate for the variables that exist from job to job, from property to property? "I've never, ever seen two jobs identically alike," says Vander Kooi.

3) Does it give the owner the ability to control the job *and* the company more? (Simply put: getting the job done at a price "that leaves a profit.")

4) Does it give the owner the information needed to make good business decisions? (Not decisions based on emotion or a "gut feeling.")

(Hey Chuck, what's wrong with "business consultant?" Or "longtime construction industry guru?")

Vander Kooi says he wants contractors to always remember him and the two words *overhead recovery* synonymously. Forever. That's how crucial he feels these two words are to the continued business survival of any contractor, including landscape contractor.

Contractors *must* have systems to recover overhead if they want to stay in business, i.e. make a profit. If they don't have ways to recover overhead, it will strangle a company as surely as the sun rises every morning, says Vander Kooi.

In fact, he insists, a contracting business can suffocate even with money coming in and everyone busy. It will die because no profit is dribbling out. This so-called profit is being absorbed by overhead that isn't being rightfully recovered from customers.

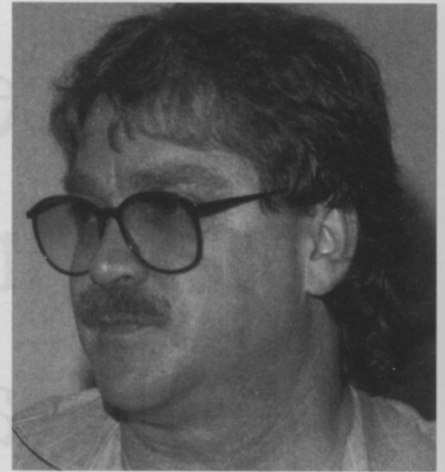
Vander Kooi has a rather dramatic way of describing overhead: he calls it "the bill in the night."

It *always* comes due, he insists, every nickel, dime and quarter. It's *never* forgiving.

"Overhead is a lot more of a fixed cost than most contractors would understand," says Vander Kooi.

Successful contractors "recover" overhead in large part, through pricing/bidding systems based on a realistic understanding of the true costs of operating a business, particularly the true costs of overhead, he explains. It takes some digging to really nail down overhead because costs are often hidden in twilight areas.

Usually these expenses can't be billed directly to customers but they *must* be recovered nonetheless. They include, among many others, the expense of getting to and



**Charles Vander Kooi urges contractors to calculate 'true' costs before putting a price to their services.**

from jobs, or the cost of disposing of landscape wastes arising from work on a customer's property.

In truth, Vander Kooi says, a contractor should look at overhead as "the family budget of the business."

And, just like a budget, contractors must determine what their overhead is going to be prior to starting a business season. "You have to project a future overhead that you will recover over future jobs," he says.

The reason is obvious, he says. No business can make a profit until it's paid off its overhead. In landscape contracting, this is typically anywhere from mid-October to early November.

That's why instead of slowing down for the holidays, Vander Kooi says this is the time for landscape contractors to "put the pedal to the metal" and maximize production and profits.

Even then, says Vander Kooi, the national average of profit for both low-risk (those who sub-contract out most work) and high-risk (those who hire and manage a lot of labor) contractors is about two and three percent, respectively.

—Ron Hall

### **ELSEWHERE**

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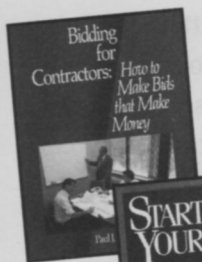
# LANDSCAPE MANAGEMENT

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*Surflan is so mild it can be applied over the top of delicate ornamentals.*

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# Actually, the more you see in this picture is contained

get a full season of broad spectrum grassy weed control.

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Here's a way to make your first application of Roundup herbicide last all season. Mix 3 oz. of Surflan per 1000 square feet with ¼ oz. of Roundup per gallon of water and apply when weeds are less than 6" tall. Roundup will knock the weeds down, and Surflan will keep them from coming back for the rest of the season. Since Roundup is a postemergence herbicide, do not spray this tank mix on any desirable vegetation.

emergence herbicides that make this possible. All of them are very gentle on your plants. And they bind tightly to soil particles, which makes them very resistant to leaching. If you're looking for grassy weed control, you



*Our preemergence herbicides set up a gentle control zone that keeps weeds from germinating all season.*

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## Becoming a 'Certified Turfgrass Professional'



**University of Georgia's  
Helen Mills:  
certification  
candidates go at their  
own pace**

■ Certified Turfgrass Professional—doesn't that have a nice ring to it?

It's finally here, thanks to a partnership between the University of Georgia and the Professional Lawn Care Association of America. Lawn care technicians, once they meet specific requirements,

can be known as CTPs.

They can wear the distinctive new green-and-white patch on the sleeves of their uniforms.

John Robinson, PLCAA's immediate past president, says certification will help confirm to the public that lawn care companies have better trained technicians in the field.

Adds Steve Derrick, Orkin Pest Control, "We in lawn care knew we had to increase the quality of service and also the perception of quality that our customers had of us." That, says Derrick, is why PLCAA sought help in administering and managing the program. "We wanted an outside credible source so it wasn't us training us."

When Derrick contacted Dr. Keith Karnok, professor of agronomy at UGa, he found a ready ear. Karnok, author of "Principles of Turfgrass Management" with more than 17 years experience in both warm- and cool-season turfgrasses, directed PLCAA to Helen Mills, U.Ga. Center for Continuing Education.

The Center, Dr. Karnok and PLCAA then collaborated on building the independent study course that technicians must complete and pass to earn certification.

Mills says the home correspondence course is based on the notebook "Principles of Turfgrass Management." It is divided

*continued on page 68*

## LM GRAPEVINE

Quote of the month comes from **Michael Fumento**, author of the book "Science Under Siege." While attending the Georgia Turfgrass Conference, **LM** heard Fumento utter this memorable line: "I've got very good news if you're a bullfrog. No amount of dioxin will make you croak. On the other hand, it won't make you a prince, either." Second runner-up for quote of the month also comes from Fumento's mouth: "Wouldn't it be great if every community in the country had a lower-than-average risk of cancer? It'd be great! It'd also defy all the laws of mathematics!"

Think you're busy? Then **LM** advises you compare your schedule with that of **Dick Ficco**, one busy person. Ficco, the president of Partners Quality Lawn Service, Easton, Mass., heads the Massachusetts Association of Lawn Care Professionals, serves on the boards of both PLCAA and the Massachusetts Turfgrass Advisory Commission, is the resident lawn care spokesman on WBZ Radio, and is a frequent guest on local television. Last year, he also accepted an appointment to the national EPA Pesticide Users Advisory.

A long-standing friend the green industry, **Bill Culpepper**, is starting his own business. Culpepper, formerly of DowElanco, will manufacture and market three control products—Arest, Pipron and Sonar—through the new company, SePro. He will also be the exclusive U.S. distributor of Rubigan to the specialty horticultural markets. Culpepper was formerly on the board of directors of RISE, the PLCAA and the GIE. "We'll address the more specialized markets within the green industry," Culpepper tells **LM**. "Frankly I love it. I like to put together a whole lot of little pieces and make it make sense." You can contact SePro at (317) 580-8282.

FX-10 is the new "miracle" turfgrass in Florida. According to a press release received in the **LM** offices: "during the 'storm of the century...on the shores of Tampa Bay...homes landscaped with FX-10 received little or no erosion damage while homes in the same development without FX-10 had entire lawns washed away. **Bobby Bonilla**, the New York Mets outfielder, uses FX-10 for his lawn and helicopter landing at the mouth of the Manatee River, says **Jim Anderson** of Anderson & Son Nursery, Ruskin, Fla. For more info about FX-10, phone (800) 532-7006.

**Dr. Bruce Ames** continues his crusade against seemingly unfair EPA requirements and the glut of professional environmentalists. An **LM** staffer, en route to a state turfgrass conference was reading a recent issue of *Forbes* magazine. He noted this quote from Dr. Ames: "I think the EPA kills people. I knew lots of good guys who went to work for the EPA because they were idealists, but it's run by lawyers, and the institutional incentives take over. The scientists on the committee...keep putting out lousy reports" because of the pressure to conform to established government risk standards.



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CTP FROM PAGE 66



Orkin's Steve Derrick: industry needed a credible outside source



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into 14 chapters. Review questions at the end of each chapter prepare the technician for the four open-book mail-in tests. These are then graded and returned to the technician.

At the end of Chapter 7 the technician must take a monitored, closed-book exam; then, a second monitored exam at the completion of the notebook. The technician must score 70 percent or better to earn the CTP designation and patch. The U.Ga. will arrange exam details with a university or college in the technician's geographical location.

Mills says a technician can take as long as 12 months to complete the course. "It's up to the students to let us know when they want to take the exams," she says.

PLCAA Government Affairs Director Tom Delaney believes the certification program may help companies retain employees better. "Technicians can feel better about themselves," he says.

Delaney says he's alerting regulators in every state to the new program. "I feel a lot of them are going to jump on this."

The enrollment fee is \$275 per person. Discounts for multiple enrollments from the same company are available. Cost to PLCAA members is \$225 per person.

For information on course enrollment, call the University of Georgia at (706) 542-1756. PLCAA members should call (800) 458-3466 for information concerning special member rates.



—Ron Hall

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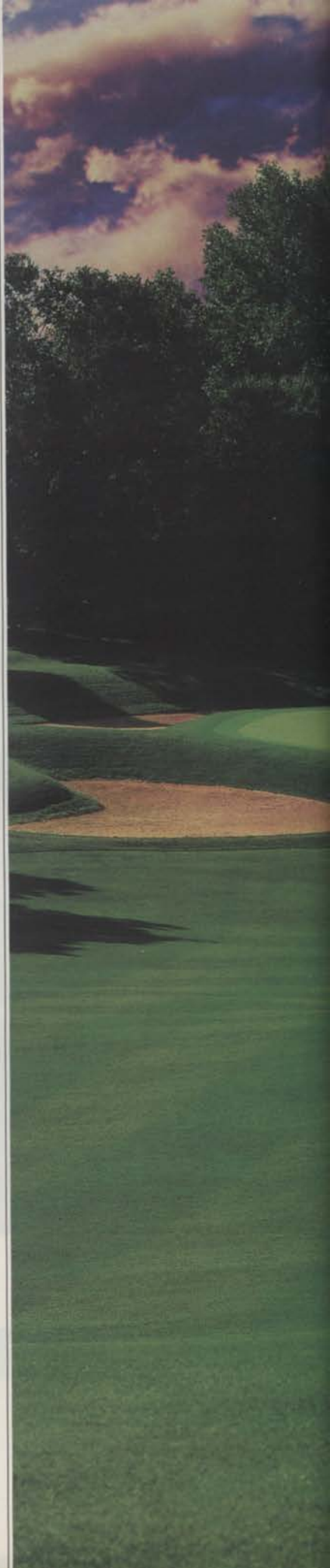
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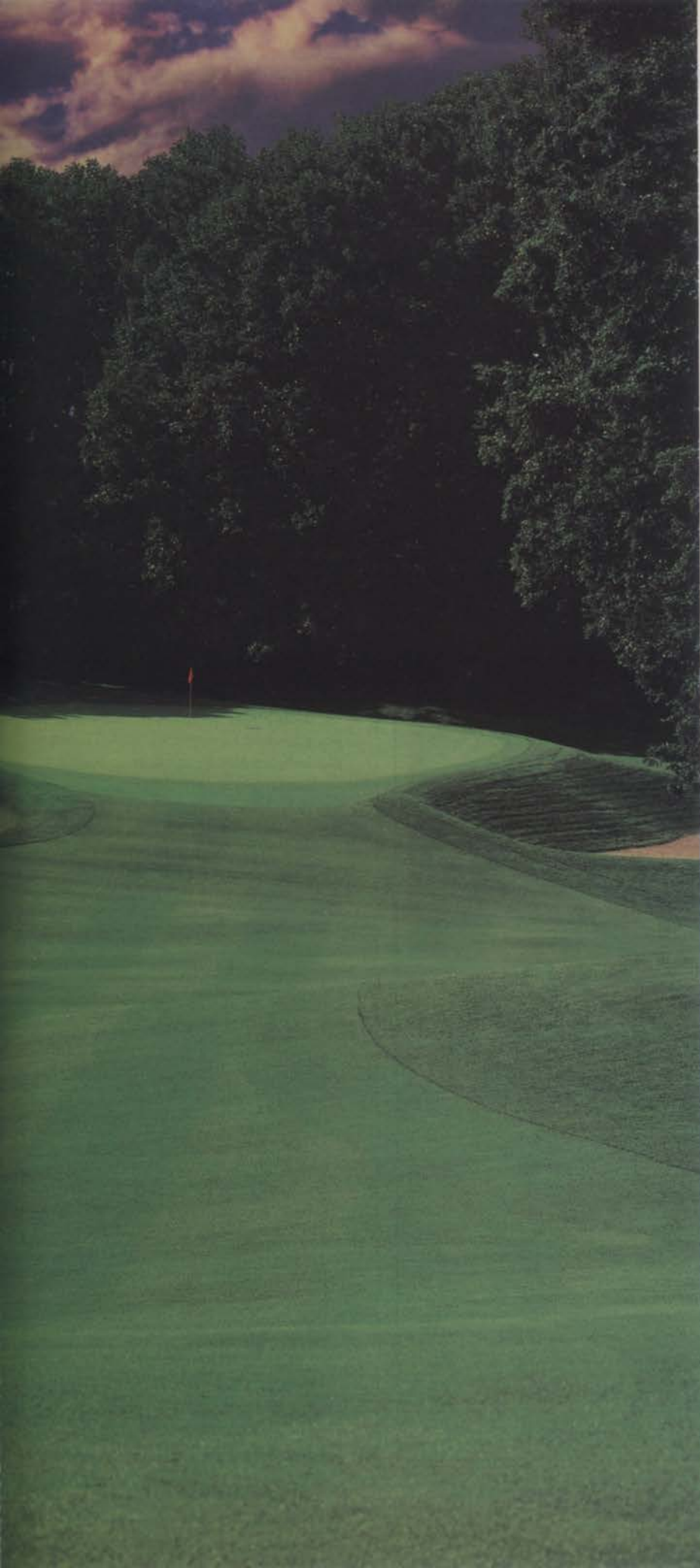
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## Route for profit

■ You might be losing profits from sloppy routing.

Ric Moore, president of Green Up Lawns and Landscapes, Inc. of Salem, Va., realized when he hit his 500th customer that it was time to organize his routing method. (Good thing he did it then, rather than try to organize his current 3000!)

During the first few years in business, Moore says he, like many new business-

men, concentrated more on growing the business first, and making money second.

But the more a company matures, growth has to take a back seat to profitability, for the sake of the company's existence.

Moore believes routing serves three functions:

- It **divides** the total number of customers into small groups;
- It **defines** or determines the treatment sequence;

● It **determines** profitability, or plays a major part in profitability.

"Poor routing can lead to cancellations, poor production, poor profitability, overworked—and unhappy—employees and high turnover," says Moore.

"Efficient routing means you have happy customers, maximum production and profitability."

This kind of routing, based on customer "Stock Numbers," also makes invoicing a snap.

"The computer prints invoices in sequence, and we don't have to print them all at once," says Moore. They might run all the commercial seeding accounts first, then aeration clients. It's a nice luxury.

Moore assigned a production manager to supervise the routing scheme. His responsibility is to see that the yards get done on schedule and in sequence, and eliminates technician's temptation to route in a way that's convenient to *themselves*, rather than to the system.

Moore's routing system is lately challenged by the "call ahead" customer, and the neighbors who want to be notified prior to lawn care applications. These people, believes Moore, are here to stay.

Moore has a part timer come in after hours to handle the "call aheads," who by the way pay an extra buck for the courtesy.

(One green industry colleague charges \$5; a more realistic tariff, Moore believes.)

—Terry McIver

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### STEPS TO RIGHT ROUTING

1. Define your service area. Let the crew know where you will and won't go. "You just can't treat every lawn," says Ric Moore.

2. Define territories within service areas, with one technician in charge of each territory. Moore has Roanoke divided into five territories. For example: southeast; northeast; commercial territory; residential territory.

3. Define routes within those territories. It will normally take one technician three or four days to finish the route. Moore uses map coordinates, like "K-5," or "west of Main St."

4. Service customers in sequence. Moore assigns each customer a Stock Number. The technicians service those lawns in sequence, without fail.

—T.M.



# HOT TOPICS

## How goes the green industry?

### Early indications good as 1994 golf and landscape growing season begins.

**CLEVELAND**—According to statistics from various sources, the green industry is alive and well and enjoying the recent slight upturn in the overall economy.

For instance, according to the Outdoor Power Equipment Institute, all categories except rear engine riding mowers are expected to show increased shipments in both the 1994 and 1995 model years.

The OPEI's forecast predicts positive increases in housing starts and disposable income to be contributors to the overall outdoor power equipment growth. Additionally, foreign economic growth among major trading partners and a somewhat weaker dollar should help an already strong power equipment export market grow, the OPEI notes.

From Irwin Broh & Associates comes its ninth annual survey of more than 900 landscape contractors and lawn maintenance services. Of the six product categories studied, the intention to buy for 1994 was highest for string trimmers.

Finally, from Green Exports USA comes word that export sales of U.S. nursery products exhibited a two percent increase over last year's sales during the first half of 1993.

Sales to the European Economic Community (EC) more than offset lower sales to Canada. Cut foliage and fresh cut flowers exhibited some of the strongest gains with increases of 18 and 23 percent, respectively.

### ANNUAL EXPORT SALES OF NURSERY PRODUCTS AND CUT FLOWERS



For more information, or to purchase studies, contact:

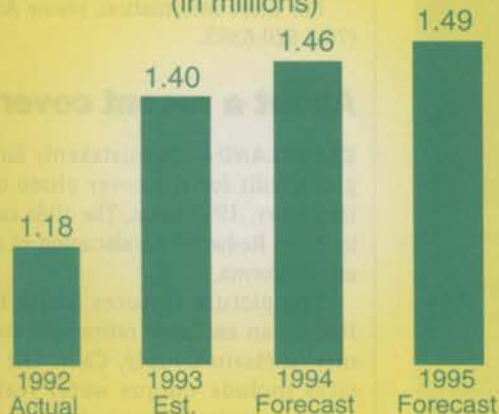
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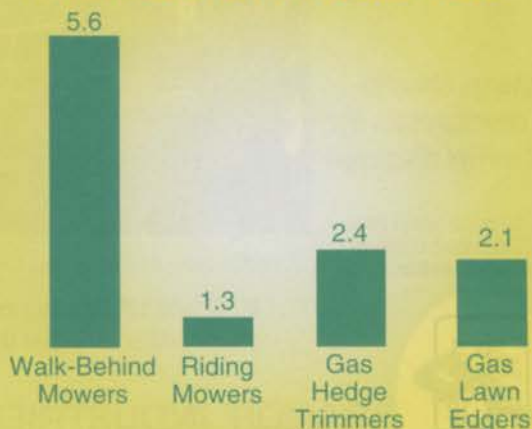
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# HOT STUFF

## Landscaping marketing stuffers

**RESTON, Va.**—The Associated Landscape Contractors of America offers six marketing stuffers, designed specifically for the exterior landscape professional.

The full-color promotional stuffers focus on selling landscape services. They are:

- "Making a splash"
- "Irrigate"
- "Creating curb appeal"
- "Create an environment"
- "Colorful landscapes"
- "Making light of it"

The stuffers can be enclosed with sales letters, inserted in your company brochure, included with invoices, mailed with a direct mail piece or handed out in person. They are available in individual quantities of 50. For more information, phone ALCA at (703) 620-6363 or (800) 395-2522.

## Free compliance program

**WEST PALM BEACH, Fla.**—RGF Environmental Systems has a program containing pertinent information on total EPA compliance standards and technology for the turf maintenance industry.

The program contains practical solutions, alternatives and

plans for:

- storm water management;
- waste problems related to rinsing and pressure washing of turf maintenance and pesticide application equipment;
- mixing and loading facilities;
- pesticide storage;
- storm water runoff of pesticide spills; and
- other related pollution problems.

For a free copy, contact RGF at (407) 848-1826 or (800) 842-7771.

## Scholarship established

**TANGENT, Ore.**—The late William Kent Wiley Jr., one of the founders of Pickseed West, was honored when the company endowed a fellowship through Oregon State University.

The Wiley Memorial Fellowship is designated for graduate students in the Grass Seed Science program within the Department of Crop and Soil Science at OSU.

"The \$50,000 we have contributed is enough to get the fellowship established," says Dr. Gerry Pepin of Pickseed West, "but more is needed. We hope that others in our industry will step forward to add to this endowment, which will produce future leaders in the grass seed industry."

Wiley was a well-known green industry personality, a founder of Pickseed West who retired in 1990 and died late in 1992.

For more information, contact the Office of Development, OSU, Snell Hall, 517, Corvallis, OR 97331-1650.

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## Certifying landscapers

**RESTON, Va.**—Landscapers can now receive national certification for professionalism from the Associated Landscape Contractors of America.

The organization offers a six-hour exam with five sections tailored to the industry: (1) business planning, accounting and management; (2) health safety and human resources; (3) production/operations and horticulture; (4) risk, law and contracts; and (5) sales, marketing, communications and public relations.

Those who pass the exam are designated "Certified Landscape Professionals."

For more information, phone ALCA at (703) 620-6363.

## About a recent cover

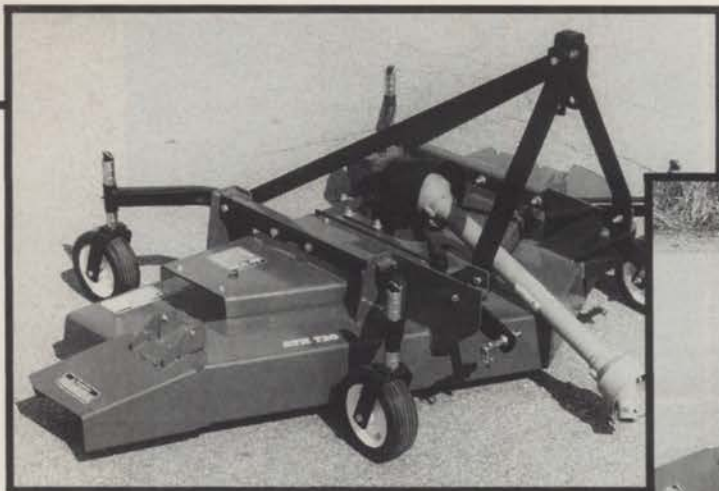
**CLEVELAND**—LM mistakenly failed to give credit for the cover photo on the December, 1993 issue. The slide came to us from Redwood Landscaping of northern California.

The picture features Smith Ranch Homes, an exclusive retirement community in Marin County, Calif. The home sites include unique water features, putting/sporting greens and lush gardens.

Redwood Landscaping maintains the community.

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See them and the 17 other new products from Bush Hog at your Bush Hog dealer. They are part of Bush Hog's full-time commitment to designing and building the best support line equipment.

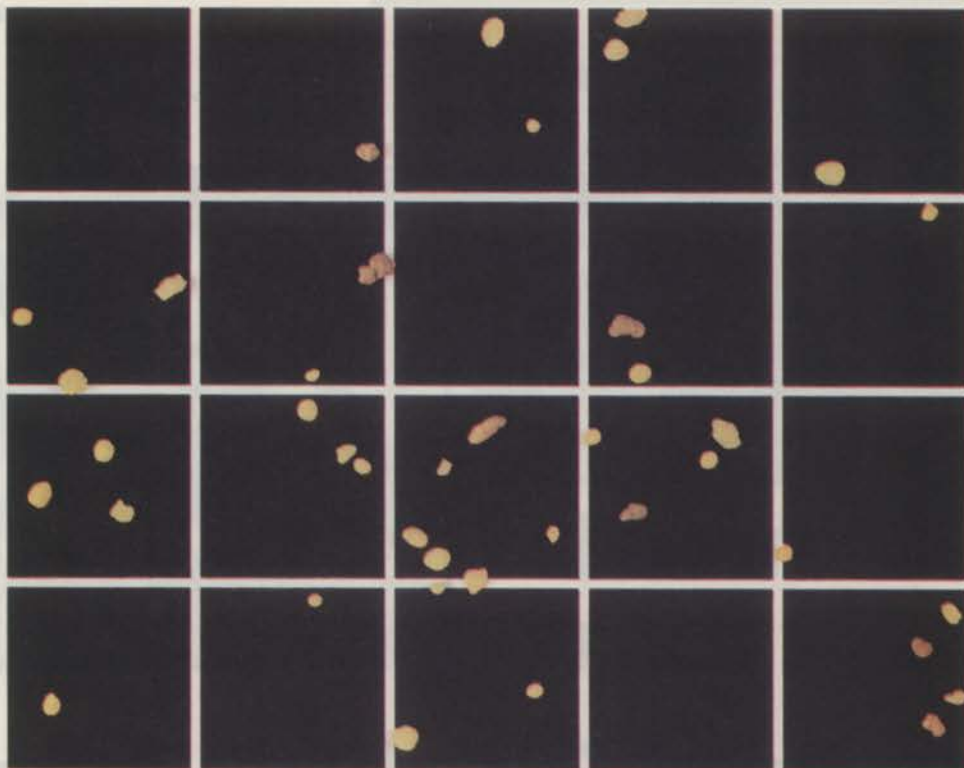


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Particle distribution pattern for typical blended product.

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fewer application breaks with more effective control of grassy and broadleaf weeds. Field tests show that poorly formulated combination products may sacrifice preemergent weed control by up to 15% or more.

- No other preemergent herbicide can match pendimethalin's combination of broad spectrum weed control, control effectiveness and season-long performance.

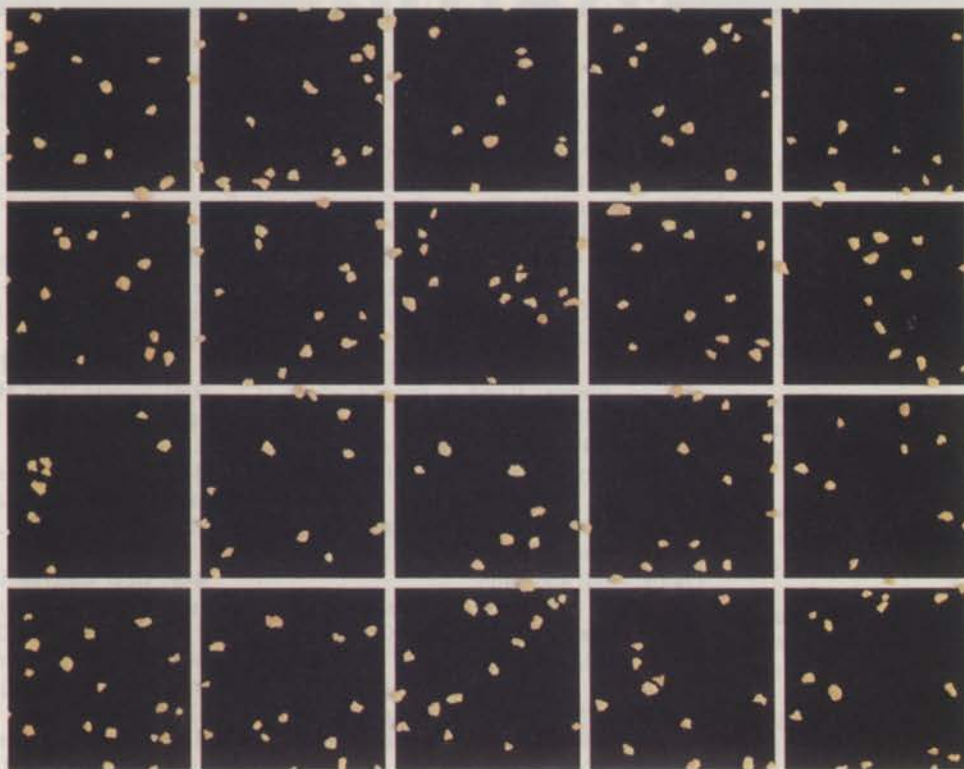
### Preemergent Control Comparison

	Crabgrass	Goosegrass	Foxtail	Poa Annua	Oxalis	Spurge	Henbit	Chickweed
pendimethalin	H	H	H	M	H	M	H	H
prodiamine (Barricade)*	H	M	H	M	M	M	M	M
dithiopyr (Dimension)*	H	M	H	M	H	M	M	M

H - High M - Medium (Based on SCOTTS/university data)

\* Barricade and Dimension are trademarks of Sandoz Limited and Monsanto Company respectively.





Particle distribution pattern for SCOTT'S methylene urea fertilizer/pendimethalin product.

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For more information, contact your SCOTT Tech Rep today. Or call 1-800-543-0006.



Pendimethalin Plus Fertilizer



## GREEN INDUSTRY EVENTS

### FEBRUARY

**14-16: Pennsylvania Nurserymen and Allied Industries Conference.** Hershey (Pa.) Lodge and Convention Center. Phone: (717) 238-1673.

**15-16: Associated Green Industries of Ohio Trade Show and Educational Meeting.** Strongsville, Ohio. Phone: (614) 261-1221.

**15-17: Landscape Contractors Assn. MD/DC/VA Winter Workshop.** Holiday Inn Crowne Plaza, Rockville, Md. Phone: (301) 948-0810.

**15-18: International Erosion Control Association Conference and Trade Exposition.** Reno (Nev.) Hilton. Phone: (303) 879-3010.

**16-17: California Landscape Industry Show.** Long Beach (Calif.) Convention Center. Phone: (916) 448-2522.

**16-17: IPM in Landscapes Conference.** Tsawwassen Inn, Canada. Phone: Georgena Good, (604) 980-9735.

**16-17: New York State Turf and Grounds Exposition II.** Suffern, N.Y. Phone: (800) 873-8873.

**17-18: Nevada Landscape Conference & Trade Show.** Reno-Sparks Convention Center, Reno, Nev. Phone: Steve Williams, (704) 856-1150.

**20-23: Outdoor Power Equipment Distributors Assn. Annual Meeting.** Disney's Yacht Club Resort, Orlando, Fla. Phone: (215) 564-3484.

**21-23: MexiGolf '94.** Mexico City, Mexico. Phone: Boris J. Franchomme, (510) 526-6922.

**22-24: ProGreen Expo.** Denver (Col.) Convention Center. Phone: (303) 756-7282.

**22: PLCAA Business Management and Risk Survival Workshop.** Albany, N.Y. Phone: (800) 458-3466.

**23-24: Southern Illinois Grounds Maintenance School.** Gateway Convention Center, Collinsville, Ill. Phone: (618) 236-8600.

**23: New Jersey Landscape '94.** Meadowlands Convention Center, Secaucus, N.J. Phone: Jim Stewart, (201) 664-6310.

**23: PLCAA Business Management and Risk Survival Workshop.** King of Prussia, Pa. Phone: (800) 458-3466.

**24: PLCAA Business Management and Risk Survival Workshop.** Worcester, Mass. Phone: (800) 458-3466.

**28-Mar. 2: Massachusetts Turf Conference.** Springfield (Mass.) Civic Center. Phone: Mary Owen, (508) 892-0382.

**28-March 3: Vertebrate Pest Conference.** Westin Motel, Santa Clara, Calif. Phone: Dr. Terrell Salmon, (916) 757-8623.

### MARCH

**3-4: Sports Turf Management Seminars.** Gainesville, Fla. Phone: (414) 733-2301.

**4-5: American Landscape Maintenance Assn. Trade Show.** War Memorial Auditorium, Ft. Lauderdale, Fla. Phone: (305) 925-7996.

**4-5: Golf Course Wastewater Symposium.** Newport Beach, Calif. Phone: Dr. Kim Erusha, (908) 234-2300.

**4-5: Muni-Golf Course Developments.** Atlanta Marriott Marquis. Phone: (800) 285-2332.

**4: Midwest Chapter/STMA Annual Meeting and Awards Luncheon.** Avalon Banquets, Elk Grove, Ill. Phone: Mike Schiller, (708) 439-4727 or Mike Trigg, (708) 360-4750.

**5-8: Canadian Turfgrass Conference & Trade Show.** Calgary (Alberta) Convention Center. Phone: (905) 602-8873 or (800) 387-1056.

**5: Ohio Arborist Foreman Training Meeting.** Holiday Inn Lane Avenue, Columbus, Ohio. Phone: (615) 876-3694.

**6-7: Tampa Bay Horticultural Trade Show.** Tampa (Fla.) Convention Center. Phone: (813) 920-4393.

**6: Women in Horticulture Conference.** Bellevue (Wash.) Conference Center. Phone: Terri Arnold, (206) 935-7951 or Deb Powers, (206) 524-1672.

**7-8: Sports Turf Management Seminars.** Lincoln, Neb. Phone: (414) 733-2301.

**9-10: CALCP Spring Training Conference.** Jefferson County (Col.) Fairgrounds. Phone: (303) 224-2293.

**9-10: Shade Tree Short Course.** Iowa State University, Ames, Iowa. Phone: Dr. Paul Wray, (515) 294-1168.

**9-10: Sports Turf Management.** Riverside, Calif. Phone: (714) 787-5804.

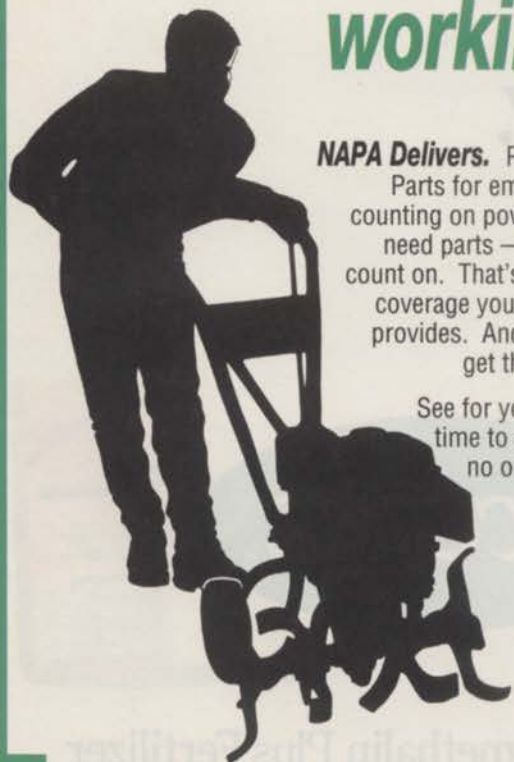
**10: "Building Success in the Workplace."** Holiday Inn Sports Complex, Kansas City, Mo. Phone: Terry Ann Turner, (314) 882-4087.

**10: "Building Success in the Workplace."** Radisson Hotel, St. Louis. Phone: Terry Ann Turner, (314) 882-4087.

**10: Integrated Pest Management Conference.** Swarthmore College. Phone: (215) 489-4315.

**12: Turf Management Seminar.** Cuyamaca College, El Cajon, Calif. Phone: Diana Landis, (619) 670-1980, ext. 262.

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**ELECTRICAL HAZARDS...**The International Society of Arboriculture is offering "Trees and Overhead Electric Wires: Proper Pruning and Selection." The nine-page booklet contains full color pictures and diagrams on every page. Each booklet costs \$2 plus shipping and handling. Utilities wishing to place orders of more than 2,500 should contact the ISA office for possible discounts. To order, send Visa or MasterCard number with expiration date to: ISA, P.O. Box GG, Savoy, IL 61874.

**IPM TACTICS...**"Handbook of Integrated Pest Management for Turf and Ornamentals" is available from Lewis Publishers for \$95.00. The book quotes more than 40 experts. It is aimed at urban landscaping with special considerations for golf courses. To order, write Lewis Publishers, 2000 Corporate Blvd. NW, Boca Raton, FL 33431 or phone (800) 272-7737.

**EPA STANDARDS...**The U.S. Environmental Protection Agency has two new pesticide publications dealing with worker protection. One is for employers: "The Worker Protection Standard: How to Comply, What Employers Need to Know." The other, for workers, is printed in both English and Spanish: "Protect Yourself from Pesticides." The publications are available *free* from John Forwalter, U.S. EPA Region 5, Environmental Sciences Division, Pesticides Section SPP-14J, 77 W. Jackson Blvd., Chicago, IL 60604.

**MORE ON STANDARDS...**Gempler's, which provides the protection and compliance equipment to the horticultural market, has a 154-page guide to the new EPA worker protection standards. For more info, phone (800) 382-8473.

**WOOD STUFF...**An updated version of the eight-page booklet "Guide to the Characteristics, Use and Specifications of Pressure-Treated Wood" is available from the Western Wood Preservers Institute. It contains recommended specifications for lumber, plywood, glued-laminated timbers, foundation piling and building poles. For your *free* copy, write Western Wood Preservers Institute, 601 Main St., Suite 401, Vancouver, WA 98660.

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# JOB TALK

## A new way to control weeds in ponds, lakes

**Some species of aquatic vegetation are beneficial to water features. Here's which, and why.**

by Dave Murray,  
Limnion Corp.

■ It took the participants of the conference 15 minutes to quit laughing...bentgrass was a weed and this guy is suggesting we deliberately plant it in our fairways and greens.

Thus, the entry of what was previously known as a nuisance weed made its unflattering debut into the everyday lives of most golf superintendents. Bentgrass, of course, is now the most accepted and respected grass for golf courses in the world.

Other species of vegetation also became widely used after the beneficial characteristics of the plant were demonstrated. The previous treatment of these species was widespread eradication when the proven, logical solution to them has been management and proper use.

Today, the golf and landscape industries continue to eradicate aquatic vegetation in water hazards, ponds and lakes. There are, however, numerous examples of aquatic weed species that are ideally suited to the golf course superintendent, landscape architect

or landscape contractor.

The market for aquatic plants has been small and limited to the decorative backyard fish pond. The benefits of aquatic vegetation have seldom been examined because their dense growth patterns don't appear to be potentially valuable.

Aquatic vegetation now offers, however, a unique solution to one of the problems we all face: algal blooms that are typically dense and often consume the entire pond or lake.

For example, the bottom sediments of lakes and ponds are frequently contaminated with 10 or more years of copper sulfate treatments. Vegetation, even if desirable, might not survive the sediment contamination levels. However, certain aquatic vegetation types are capable of withdrawing the metal contaminants from the sediment. The absorption technique does not even allow the vegetation to become a hazardous waste itself.

Another type of aquatic vegetation is capable of getting adequate sunlight and nutrients through the algal growth. This species of vegetation, *Ceratophyllum demersum*, grows no roots and thus competes directly for nutrients the algae also needs. Introduce that vegetation and the algal blooms disappear.

Finally, the shallows of lakes have, in the past, required herbicide treatment or physical removal to stop the growth of aquatic vegetation. If the nuisance perimeter vegetation could be replaced with a low-growing plant, no herbicide treatments would be needed. *Eleocharis coloradoensis* does precisely that. It will grow only two inches tall and actually emit a chemical from its roots to drive off its larger and annoying cousins.

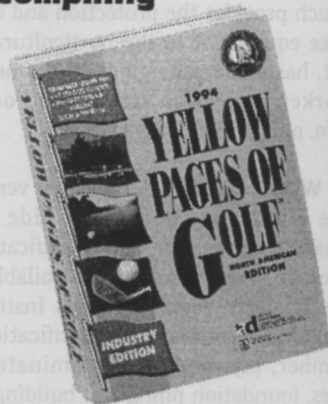
Proper planting of a lake or pond needs to be done only once. The present budgets of lake managers, golf course superintendents and maintenance contractors can be re-examined. The finished product not only can have improved aesthetics but eliminate the liability exposure of water-borne herbicides that migrate.

—The author is president of Limnion Corp., a company providing beneficial aquatic vegetation to the golf and landscape industries. Limnion's address is P.O. Box 736, Bayview, ID 83803; phone number is (800) 638-9933.

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# GREEN INDUSTRY SHOWCASE

## Fungicide effects long lasting

Sentinel fungicide from Sandoz Agro has received EPA registration for use on golf course turfgrass.

Sentinel offers superintendents long-lasting protection against 14 major turf diseases, including brown patch, dollar spot and summer patch, at rates lower than any commercially-available fungicide, Sandoz says.

"Sentinel averaged 20 to 35 percent longer control than other systemics in 1993 trials," says Dr. Bryan Delp of



Sandoz.

The fungicide also controls rust, southern blight, red thread, copper spot, anthracnose, stripe smut, necrotic ring spot, gray and pink snow mold, and gray leaf spot.

It comes in easy-to-use water-soluble packaging. Each 3.6-oz. bag treats  $\frac{1}{4}$  to  $\frac{1}{2}$  an acre. For controlling additional diseases, it can be tank-mixed with other fungicides like Daconil or Chipco 26019.

**Circle No. 191 on Reader Inquiry Card**

## Specialty mower adapts for tall grass

Garden Way has expanded its specialty mower line with the Troy-Bilt Wide Cut Mower for larger-than-average lawns, and the Troy-Bilt High Wheel Mower for high grass and difficult terrain.

The mowers are backed by Troy-Bilt's seven-year warranty.

The wide cut mower features 50 percent more cutting width than conventional mowers, 33 inches.

The Wide Cut mower's differential steering provides easy maneuverability around yards. The front-mounted deck lets operator cut evenly without wheel marks. The unit reaches easily under shrubs, trees and fences.

**Circle No. 192  
on Reader Inquiry Card**



## 76-inch cut and hydrostatic drive are main features of new large-area mower

Yazoo's new YHRLK23 mower is powered by a 23 hp Kohler engine and fitted with a 76-inch cutting deck.

The mower features hydrostatic drive for smooth changes between forward and reverse gears, without shifting.

A single-pedal foot control manages speed and direction, and easy-to-turn, rear-wheel steering affords smooth maneuvering in tight spots.

The company has also brought in a new instrumentation design and a direct-link steering construction for more operator efficiency and responsive steering control.

The deck is made of 11-gauge, formed steel and features front edge reinforcement for added durability.

A full-floating design and three heat-treated, alloy steel, high-lift blades deliver a manicured look.

Cutting heights are adjustable, from 1.5 to 4.0 inches.

**Circle No. 193 on Reader Inquiry Card**

## Tractors come with mulching blades, chute blocks

Two Husqvarna yard tractors the YT180 and YT180H, are equipped with 18 hp Kohler engines and feature 42-inch air induction decks that draw air into the underside of the deck area from a vent.

This allows the cutting deck to be operated at lower cutting heights or in lush green areas—while still maintaining excellent vacuum and discharge velocity.

Both models come with an easy-to-install mulching blade and chute block, making bagging and raking unnecessary.

The two models can move earth and snow year-round with the easy-to-mount snowblade, blower and tiller.

The YT180H also comes with hydrostatic drive, a fluid drive system which allows a full range of "shift on the go" forward or rear ground travel by moving just one lever.

No clutching is necessary with this "automatic," as a hydrostatic has a built in neutral position between forward and reverse speeds.

**Circle No. 194 on Reader Inquiry Card**

## More deck and engine options added to line of zero-turn riding mowers

Scag Power Equipment has added three more deck options to its rugged SSZ Zero-Turn Rider line.

Available in 42-, 48-, 52-, and 61-inch cutting widths, the SSZ's floating cutter deck is unmatched by the competition in delivering a smooth, manicured cut, Scag contends.

Driven by twin hydrostatic transmissions, the compact Scag SSZ Super Z gives commercial cutters the benefits of zero-radius performance in a durable, economical package.

Engine options include:

- 16 hp Briggs & Stratton Vanguard;
- 18, 20, or 22 hp Kohler Command models.

Engine features:

- a convenient electric blade engagement clutch;
- durable taper roller bearing spindles;
- oversized 5-gallon gas tank.

**Circle No. 195 on Reader Inquiry Card**



# PRODUCT REVIEW

## Deicer has low toxicity, low corrosion; loves the cold

Select liquid deicer from Ossian, Inc. is a new product for use near landscape planting and aquatic life.

The deicer is biodegradable, has low toxicity, low corrosion and is effective at temperatures below -15° F.

Especially suitable applications include around entrance ways to reduce tracking and maintenance costs, near plantings or ponds, on or near metal surfaces and moving equipment like escalators, elevators and automatic doors and on diagonal or vertical surfaces.

Select is a high-performance potassium acetate-based liquid deicer.

**Circle No. 196 on Reader Inquiry Card**

## New mower has a 30-inch cut, zero turning radius

Dixon Industries now offers a new heavy duty 30-inch ZTR commercial riding mower, the ZTR 2301.



The 2301 features a 30-inch cutting deck, compact design and zero turning radius mobility which allows the operator access to areas previously only mowed by walk-behind mowers.

The ZTR 2301 completes Dixon's commercial riding mower line with cutting widths to 60 inches.

Designed with ease of maintenance in mind, the ZTR 2301 features a tilt-up high density polyethylene body allowing quick access to control and drive train adjustments.

The laser cut steel frame can be dis-

sembled for easy frame-part replacements.  
**Circle No. 197 on Reader Inquiry Card**

## Dethatcher removes all thatch, leaves sprinklers

Encore's Power Comb is a dethatcher that removes all the thatch from the turf and passes over underground sprinkler heads without damaging them.

The Power Comb shaft is designed with spring tines molded into a rubber mounting. The combination of rubber and high carbon wire gives the tines an exceptional lifespan.

The Power Comb rotates in the direction of travel to eliminate tearing grass while removing thatch.

The design also prevents the unit from throwing maintenance tool for removing thatch with minimal disturbance to the grass.

**Circle No. 198 on Reader Inquiry Card**

## Hooded sprayer allows for precise applications

The Course Air pneumatic applicator is the ultimate in precision application for golf courses, recreational fields and estates, Course Air says.

The choice of 16- or 20-foot swaths allows the Course Air to fit any application needs.

The boom system is easily maneuvered

into tight areas. The foam marker system gives the operator a visible marker to assure proper overlap of spread patterns. There is no estimating swath width, thereby eliminating double applications or missed areas.

The hooded boom design adds to the safety of application in and near residential areas.

Wind is no longer a deciding factor when considering whether or not to spray.  
**Circle No. 200 on Reader Inquiry Card**

## Tractor/loader/backhoe has good mobility, power

Kubota Tractor Corp.'s new L35 tractor/loader/backhoe displays more power than most compact tractors, while offering greater mobility than full-size industrial models.

Powered by a 35 hp gross hp. engine, the L35 is equipped with a full-scale backhoe and loader specifically designed to handle heavy excavation and fill work, especially in narrow spaces.

The L-35 has a 3-cylinder Kubota E-TVCS (Emission Three Vortex Combustion System) diesel engine that delivers high output, powerful low-speed torque and a high torque rise.

The ETVCS engine also delivers low noise levels and meets emissions regulations. The Glide Shift Transmission boosts productivity by permitting clutchless

## Steering system uses single lever control

Excel Industries has introduced Trim Steering to the green industry.

The steering system replaces the one-hand twin-lever control on all the company's Hustler commercial mowers.

Designed with the operator in mind, the control system features a comfortable, molded hand grip mounted on a single T-lever. With one hand, you have complete control of turning, braking and drive speed control. The driver just points in the direction he wants to go.

A benefit of the Trim Steering, says Excel, is that it allows the operator to finish the job in less time.



**Circle No. 199 on Reader Inquiry Card**



# PRODUCT REVIEW

shifting while moving, through all eight speeds in forward and reverse, without the power-loss common to other types of transmissions.

**Circle No. 201 on Reader Inquiry Card**

## New transmission has infinite speed control

John Deere has packed its new version of the STX38 lawn tractor with a lot of goodies:

- hydrostatic "no clutch" transmission with infinite speed control;
- a 12.5 hp overhead valve engine packs more power into a compact size;
- pressure lubrication for longer engine life; and
- oil filter is standard.

The rear tires are larger and wider, and there is a new push/pull PTO switch to engage the mower blades. The electric PTO clutch never needs adjustment.

A higher seat back is more comfortable for the driver, and a three-spoke automotive-type steering wheel gives a clear view of the dash board.

Both versions of the new STX38 include a 38-inch two-blade mower deck, an adjustable seat, and seven cutting heights from 1 to 3.5 inches.

Both lawn tractor models come with two-year warranties.

**Circle No. 202 on Reader Inquiry Card**

## Uni-loader skid steer has 50 hp, 1350-lb. load rating

Case has a new skid-steer uni-loader, the 1838.

The 1838 offers 3066 lbs. of breakout force for superior performance in a variety of loading applications.

The unit is powered by a four-cylinder Kubota diesel engine rated at 46 net horsepower at 2800 rpm.

Hydrostatic ground drive on the 1838 features infinitely variable speeds within a range of 0-6.5 mph in forward and reverse.

A choice of hand or optional foot controls provide responsive control of loader or other attachment functions.

A new automatic control lockout system is designed to enhance operator comfort while ensuring ease of entry and exit. Upon entry, the operator lowers an improved seat bar to activate the hydraulic

## Improved hydraulics, groomer new with mower

Jacobsen's LF-100 is equipped with an improved hydraulics system that the company says is more dependable.

A heavy-duty, high pressure hydraulic filter has been added, along with an improved coupling between the engine and hydraulic pump, for greater reliability.



The patented Turf Groomer fairway conditioner has proven its value to the most demanding superintendents at the best golf courses in the world.

An intersecting roller and powered knives lift and cut horizontally growing grasses—bent-grass or bermuda—to produce a dense, vertical stand of turf.

**Circle No. 207 on Reader Inquiry Card**

system and disengage the parking brake. Raising the seat bar prior to exit automatically locks the hydraulic loader controls and activates the parking brake.

**Circle No. 203 on Reader Inquiry Card**

## Fungicide receives California registration

California golf course superintendents, lawn care operators and nursery managers now have another weapon for fighting turf disease: Curalan.

Curalan fungicide, from BASF, recently received registration for use in California from the state's EPA.

Curalan, with the active ingredient vinclozolin, is labeled for use on all turf grasses and ornamentals, and prevents and controls dollar spot, brown patch, leaf spot, pink and gray snow mold, red thread, pink patch and melting out.

**Circle No. 204 on Reader Inquiry Card**

## Safety gear company makes new line for green industry

The McGuire-Nicholas Co. of City of Commerce, Calif. markets the "Protect" line of body safety gear designed for support and protection.

"Protect" back supports meet and exceed the performance demanded by the most discriminating safety professional or end-user. Each has been designed and manufactured with attention to sound

orthopedic principles along with the comfort of the wearer.

Products include protective clothing for shoulders, elbows, upper arms, wrists, hands, upper legs, hips and knees.

**Circle No. 205 on Reader Inquiry Card**

## Fertilizer with herbicide is made for golf course market

Lebanon Turf Products has introduced two new granular fertilizer pre-emergence control formulations, Country Club 18-5-9 and 7-3-22 with Dimension turf herbicide for use on fairways.

Lebanon says it is the only national manufacturer to offer Dimension turf herbicide on a homogeneous fertilizer base.

Country Club 18-5-9, with 50 percent organic nitrogen and 5.5 units of WIN, is available with .09 percent Dimension turf herbicide.

Country Club 7-3-22, with 100 percent sulfate of potash, is available with either .19 percent or .13 percent Dimension turf herbicide.

**Circle No. 206 on Reader Inquiry Card**

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2. Start with (month) \_\_\_\_\_ issue. (Copy must be in by 1st of month preceding).
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**Mail ad copy to:** Bill Smith, Landscape Management, 7500 Old Oak Blvd., Cleveland, OH 44130 or call 216-891-2670.

**RATES:** \$1.45 per word (minimum charge \$46). Boldface words or words in all capital letters charged at \$1.75 per word. Boxed or display ads \$226 per column inch, one time; \$215, three times; \$204, six times; \$194, nine times; \$183, twelve times (one inch minimum). (Frequencies based on a calendar year.) For ads using blind box number, add \$23 to total cost of ad per issue.



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**FINN HYDROSEEDERS AND MULCH BLOWERS- NEW AND USED LARGE PARTS INVENTORY- SAME DAY SERVICE. WOLBERT & MASTER, INC.** 1-800-234-SOIL. 12/94

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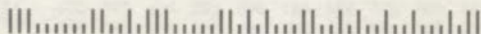
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CITY \_\_\_\_\_  
STATE \_\_\_\_\_ ZIP \_\_\_\_\_

TELEPHONE ( \_\_\_\_\_ ) \_\_\_\_\_  
FAX NUMBER ( \_\_\_\_\_ ) \_\_\_\_\_

HAVE A SALES REP CALL ME 18  (A)

101	118	135	152	169	186	203	220	237	254	271	288	305	322
102	119	136	153	170	187	204	221	238	255	272	289	306	323
103	120	137	154	171	188	205	222	239	256	273	290	307	324
104	121	138	155	172	189	206	223	240	257	274	291	308	325
105	122	139	156	173	190	207	224	241	258	275	292	309	326
106	123	140	157	174	191	208	225	242	259	276	293	310	327
107	124	141	158	175	192	209	226	243	260	277	294	311	328
108	125	142	159	176	193	210	227	244	261	278	295	312	329
109	126	143	160	177	194	211	228	245	262	279	296	313	330
110	127	144	161	178	195	212	229	246	263	280	297	314	331
111	128	145	162	179	196	213	230	247	264	281	298	315	332
112	129	146	163	180	197	214	231	248	265	282	299	316	333
113	130	147	164	181	198	215	232	249	266	283	300	317	334
114	131	148	165	182	199	216	233	250	267	284	301	318	335
115	132	149	166	183	200	217	234	251	268	285	302	319	336
116	133	150	167	184	201	218	235	252	269	286	303	320	337
117	134	151	168	185	202	219	236	253	270	287	304	321	338



FEBRUARY 1994  
This card is void  
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**1. BUSINESS & INDUSTRY**  
MY PRIMARY BUSINESS AT THIS LOCATION IS:  
(PLEASE MARK ONLY ONE IN EITHER A, B OR C)

**A. Landscaping/Ground Care at one of the following types of facilities:**

- 01  0005 Golf courses
- 02  0010 Sports Complexes
- 03  0015 Parks
- 04  0025 Schools, colleges, & universities
- 05  Other type of facility (please specify) \_\_\_\_\_

**B. Contractors/Service Companies/Consultants:**

- 06  0105 Landscape contractors (installation & maintenance)
- 07  0110 Lawn care service companies
- 08  0112 Custom chemical applicators
- 09  0135 Extension agents/consultants for horticulture
- 10  Other contractor or service (please specify) \_\_\_\_\_

**C. Suppliers:**

- 11  0205 Sod growers
- 12  Other supplier (specify) \_\_\_\_\_

Which of the following best describes your title:  
(mark only one)

- 13  10 EXECUTIVE/ADMINISTRATOR
- 14  20 MANAGER/SUPERINTENDENT
- 15  30 GOVERNMENT OFFICIAL
- 16  40 SPECIALIST
- 17  50 OTHER TITLED AND NON-TITLED PERSONNEL (specify) \_\_\_\_\_

I would like to receive (circle one) \_\_\_\_\_ (receiving)  
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 16  40 SPECIALIST  
 17  50 OTHER TITLED AND NON-TITLED PERSONNEL (specify) \_\_\_\_\_

I would like to receive (continue receiving)  
 LANDSCAPE MANAGEMENT each month: YES  NO

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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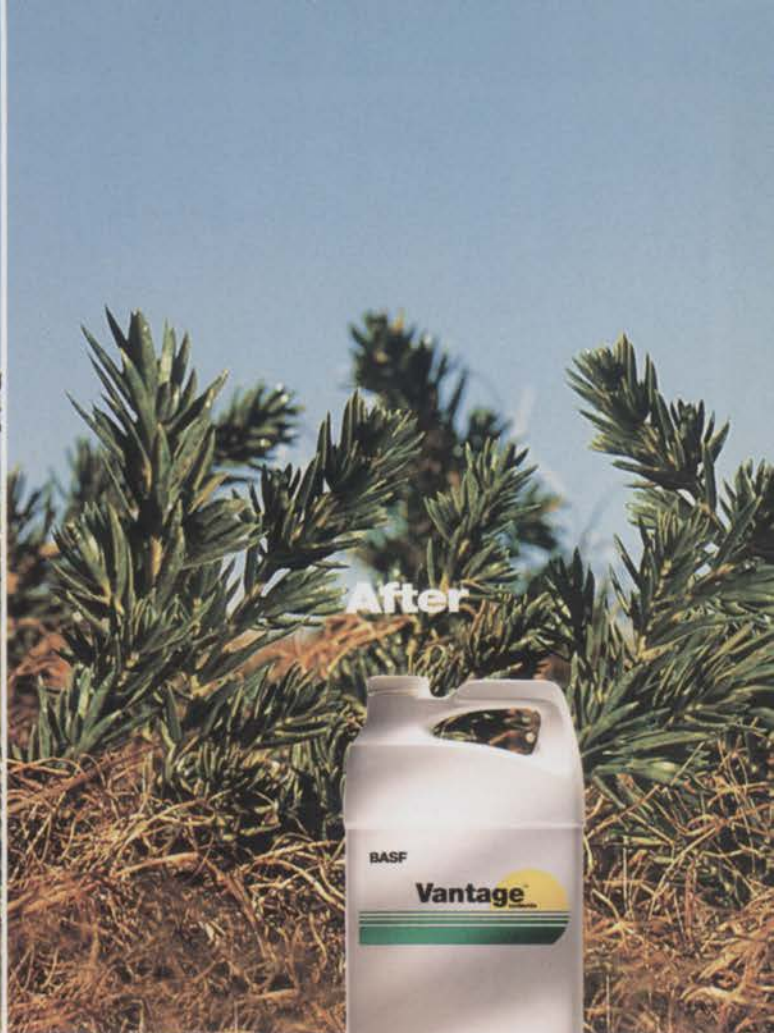


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The darker color of Rebel Jr is apparent in these test plots comparing Rebel Jr to other tall fescues.

**Less Clippings:** The lower, slower growth rate of Rebel Jr results in easier mowing and 30% less clippings. However, it is proven to have an advantage over the current, much-talked-about "extreme dwarfs"; as Rebel Jr does not grow so slowly that the plant's rate of establishment, vigor, tolerance to traffic and stress, or recuperative qualities are affected. The moderately slow growth rate of Rebel Jr is a distinct advantage over that of the extreme dwarf varieties.

**Rate of Establishment:** While Rebel Jr displays moderately slow growth, its rate of establishment is faster than the extreme dwarf varieties such as Bonsai.



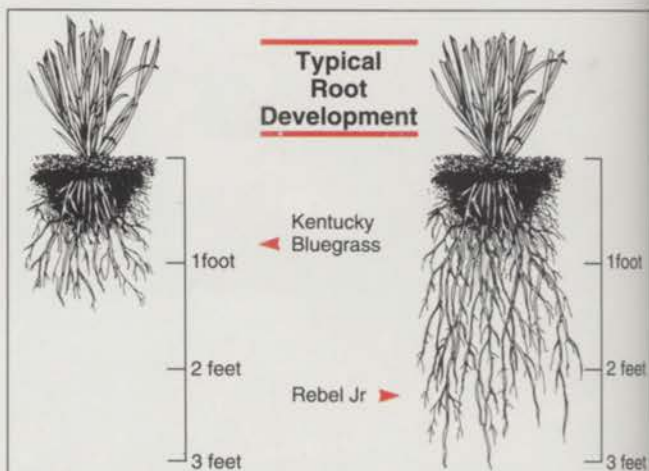
The dense, slower growth of Rebel Jr can be seen one week after mowing.

**Top Performance with Less Maintenance:** Rebel Jr from seed or sod is adaptable to full sun or moderate shade. It needs only low to medium maintenance and uses 25% less fertilizer than Kentucky bluegrass.



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- or
- 90% Rebel Jr Tall Fescue
- 10% Baron or Nassau Kentucky Bluegrass

- or
- 34% Rebel Jr Tall Fescue
- 33% Rebel II Tall Fescue
- 33% Tribute Tall Fescue

#### GOLF COURSE ROUGHS

- 90% Rebel Jr Tall Fescue
- 10% Georgetown Kentucky Bluegrass

- or
- 30% Rebel Jr Tall Fescue
- 30% Rebel II Tall Fescue
- 20% Tribute Tall Fescue
- 10% Palmer II Perennial Ryegrass
- 10% Georgetown Kentucky Bluegrass

#### ATHLETIC FIELDS

- 80% Rebel Jr Tall Fescue
- 10% Palmer II Perennial Ryegrass
- 10% Baron or Nassau Kentucky Bluegrass

- or
- 30% Rebel Jr Tall Fescue
- 30% Rebel II Tall Fescue
- 20% Tribute Tall Fescue
- 10% Palmer II Perennial Ryegrass
- 10% Baron or Nassau Kentucky Bluegrass

#### UTILITY TURF

- 100% Rebel Jr Tall Fescue
- or
- 34% Rebel Jr Tall Fescue
- 33% Rebel II Tall Fescue
- 33% Tribute Tall Fescue

#### GOLF COURSE BUNKERS

- Rebel Jr Tall Fescue Sod
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- Rebel Jr, Rebel II and Tribute Tall Fescue Sod

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