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Turf and Ornamental Communicators Association, 8400 Normandale Lake Blvd., Suite 500, Bloomington, MN 55437; (612) 832-5000.

AS WE SEE IT

JERRY ROCHE, EDITOR-IN-CHIEF



P is for professionalism, R is for respect, I is for...

WHEN HARD-DRIVING, tough-talking businessmen hold make-more-money clinics, they rant and rave, and project profit-and-loss statements on the wall.

They preach fire and brimstone, their faces turn beet red, and their voices thunder toward a litany of the "Seven Keys to Becoming a Modern Day Midas."

Thankfully, this is generally not the world in which you live. More often, in your world, grass rustles in the breeze and mums splash color across the landscape like a mad painter, while cicadas dryly chirp their song from the trees. Success in your world cannot be bought with flashy, crazy television spots or with massive clearance sales.

The key to success in this market—and I've seen it many times in travels from East to West Coast—is, quite simply, the intrinsic pride you and your employees exhibit.



SEDATE SOUTHWESTERN Ohio, for instance, is a far cry from the hustle and bustle of Wall Street. It's the home of tiny Cedarville College, where the very prideful but otherwise unassuming head groundsman is Paul Ware. His pride stems from his loyalty to the college.

"With repetitive tasks (like those in landscaping), you can't function day in and day out unless there are bigger reasons," Ware, a born-again Christian, said recently. "I'm self-motivated. But I have a responsibility not to fail. Other people depend on me to present the school and the cause of Christ in a good light."

Ware chooses his words carefully. He

doesn't want anyone to get the wrong impression.

"There are two kinds of pride," he says, "and there's a subtle line between them."

One kind of pride is the honest joy a person gets from doing a job well. The other, bad kind of pride, stems from an "I'm-better-than-you" attitude.

Take a look at the Cedarville College campus from any perspective, and you see the results that the good kind of pride can produce.

I'VE NOTICED five personality traits common to the most successful people I've visited in this industry during the past 10 years or so. Not coincidentally, their initials form a sixth trait—perhaps the most important of all: pride.

I thought you might like to see them in print:

P is for **Professionalism**, the alpha and the omega of success.

R is for the **Respect** that you must show for each client's desires and needs.

I is for the **Idealism** with which you determine each project's standards.

D is for the **Dedication** you must have, and which you must inculcate in all of your employees.

E is for the **Excellence** which you strive to attain on a daily basis.

IN THE publishing industry, you've got to have enough pride to affix your name to every article you write, as I've done below.

Would you affix your name to every landscape, every golf hole, that you maintain? Do you have the pride it takes to be successful in the green industry?

Jerry Roche

MIKE HOYLE TALKS:

BUNKER RAKES



"The John Deere 1200 Bunker and Field Rake is the first machine I've ever seen that actually performed better than the salesman promised," says Mike Hoyle, superintendent at the 27-hole Green Tree Country Club in Midland, Texas.

"We needed a machine to move sand and reshape our bunkers after hard rains," explains Hoyle. "When our John Deere rep dropped off the 1200 for a demo I asked him, 'Is it a bulldozer?' He said, 'no,' but still encouraged me to try it.


"After about 30 minutes of pushing, plowing, and raking sand, I went back and called him a liar. The 1200 had so much power it worked like a bulldozer! I called an emergency board meeting and we wound up buying two of them immediately.



"The 1200s were our first introduction to John Deere. Since then, we've purchased a number of other machines, including two 2243 Greens Mowers, two 3325 Fairway Mowers, two 4X2 Gator® utility vehicles, and one 1800 Utility Vehicle.

"The equipment has been great, but the best thing has been the way John Deere has supported us. They've worked with us on pricing, financing, and warranties, as well as providing parts availability that's unbelievable. If we order a part in the afternoon—it's rare if it's not here the next day. I've never seen anything like it in this business.

"In fact, the biggest problem now is that I'm spoiled. I expect all my suppliers to service me the way John Deere does—and some of them are starting to get a little ticked at me."

For the name of your nearest distributor, or free literature, call 800/503-3373. Or write John Deere, Dept. 956, Moline, IL 61265. 

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"I thought that the John Deere 1200 didn't have enough power because it was 2-wheel-drive," says Mike Hoyle. "It proved me wrong. You can plow with it, smooth with it, or move dirt and sand with it. It has tremendous power. It turned a reshaping job that used to take us 12 working days to do by hand into one that now takes a day and a half with our two 1200s."



Superintendent Mike Hoyle and his fleet of John Deere equipment keep busy 12 months a year supporting the nearly 60,000 rounds recorded annually on Green Tree Country Club's 27-hole layout.



LANDSCAPE MANAGEMENT

'WE KNOW YOUR TURF'

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You can never do enough to stop accidents before they happen. Production, liability and insurance concerns dictate more training and proper equipment.

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Here is a list of some of the many kinds of safety equipment for landscapers, lawn care professionals, golf course superintendents and athletic field supervisors. Be sure to use them.

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Aeration is the most important thing that can be done for multi-use athletic fields. Here are some more solutions to problems from the head groundsman at the University of Notre Dame.

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A quality company must have quality employees, insists Barclay Bullock of Portland, Ore. 'If we pay a higher wage and compensation package, we'll attract people who are more dedicated to the customer.'

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Landscape professionals can help customers conserve water while maintaining attractive lawns and landscapes with irrigation system advice and service. Residential clients, particularly, will appreciate this.

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Healthy soil depends on many key ingredients, including nitrogen, as well as phosphorus and potassium.

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Virtually all seed producers are accelerating efforts to put endophytes into as many varieties as they can. The demand is coming from the customers. This is something they want.

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As the golf course superintendent's job becomes more sophisticated, so does the technology. The weather station can be used to control irrigation, predict disease outbreaks, guard against liability issues, and much, much more.

Jerry Roche



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It's been credited for helping Midwest courses bounce back from the rains of 1993 and other problems. Here's how it can help your course.

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It's a matter of show and tell. Customers won't buy services they don't understand, so you—the LCO—have to make sure they understand, any way you can.

Steve and Suz Trusty

50 Summer burnout

There's no heat quite as intense as a mid-summer Texas scorch, claims LCO Gary LaScalea. But LaScalea and others have some ways to cure the potential problem of employee burnout.

Ron Hall

HOT TOPICS

51 Homeowner survey

Seventeen million U.S. households spent \$12.5 billion on professional landscaping and lawn care services in 1993, according to a recent Gallup survey. Even though they don't realize the true benefits of turf.

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ASK THE EXPERT

DR. BALAKRISHNA RAO



Weeds in junipers

Problem: We find a lot of grassy and broadleaf weeds in a number of our clients' juniper beds. What kind of herbicides can be used to control these? (Michigan)

Solution: It is very difficult to manage weeds already growing in a bed of junipers. For selective control of grassy weeds, consider using products such as Vantage, which can be applied over the plants.

If the juniper plants are not too close to each other, you could use Roundup, a non-selective post-emergence herbicide. However, it can injure non-target plants, so avoid any contact or drift. Where feasible, consider hand weeding. It may be time-consuming, but if the weeds are already growing out of the bed, there is not much choice for broadleaf control.

Reports indicate that careful application of products such as Basagran (Lescogran) or Princep can also help manage certain broadleaf weeds. Generally, Basagran is recommended for nutsedge management. If you are considering this option, do a trial application in a small area where weeds are actively growing.

Once the existing weeds are taken care of, consider using products such as Snapshot, a pre-emergence herbicide, for future grassy and broadleaf weed management.

Weed seeds can remain viable in soil for up to 20 years, according to some reports. Therefore, consider using products such as Snapshot where a past weed history exists. Also consider good cultural and sanitation practices to minimize weed activity.

Read and follow label directions for better results.

Strike back at *Poa annua*

Problem: The problem of annual bluegrass in sodded Kentucky bluegrass lawns was not severe in past years, but this year it is very bad. It produces light-colored clumpy grass with seedheads. Since the lawn density looked good, we changed our program to using a crabgrass pre-emergence herbicide on a spot treatment basis instead of broadcast applications. This problem appears to be more in the backyards in shady areas. How do we control it? (New York)

Solution: The pre-emergence herbicide program you have provided in the past for crabgrass control must have also helped manage annual bluegrass (*Poa annua*). Since you now use the pre-emergent on an as-needed basis in selected hot spots, my guess is that you're missing the annual bluegrass.

Reports indicate that an application of post-emergence herbicides such as Cutless or Prograss should help manage annual bluegrass weeds. Prograss can be used as a pre- or post-emergence herbicide, if applied in September. Depending on the weed population, two to three applications may be needed at 21- to 30-day intervals. Sometimes, the result of fall applications may not be seen until the next spring. According to a AgrEvo representative, Prograss will work even under snow cover. Therefore, they say to wait, and evaluate the situation following spring.

In addition to the herbicide management approach, also consider providing a good cultural program to help improve the health of desirable turfgrass. Annual bluegrass plants are very surface-rooted and heavy seed producers. As a result, they can spread rapidly and establish in areas with moist ground. Provide proper watering and mowing to help minimize the weed problem. Selectively thinning branches of trees or removing lower limbs to increase sunlight will also increase the vigor of Kentucky bluegrass, which is not very shade tolerant.

Landscape fabric and weeds

Problem: We have used landscape fabric mulch to prevent weeds from growing near roadside ornamental plantings in commercial properties. We thought this would prevent future weed problems. To our surprise, we found a lot of weeds in this area last year. Where did we go wrong? How do we get rid of the existing weeds and also prevent future weed problems? (Pennsylvania)

Solution: Landscape fabric mulch can help prevent weed problems to a certain degree. Generally, it will help manage weeds as they emerge. However, reports indicate that there were failures in managing weeds using this method. In some cases, weeds grew through the sheets. In other cases, the weed seeds blew from nearby places and landed on the mulch bed and germinated. Therefore, the practical use of this system needs further study.

If you need to control those weeds this year, please refer to the previous solution above.

Beware the leafcutter bee

Problem: What would cause pieces of leaves—possibly cotoneaster—to come out of a water faucet outside of a home? What can we do to prevent this? (Ohio)

Solution: From your description, it appears that the problem could be created by a small insect called the leafcutter bee. It is known to cut marginal portions of leaves and carry them inside the pipes, sometimes causing the pipes to become quite full.

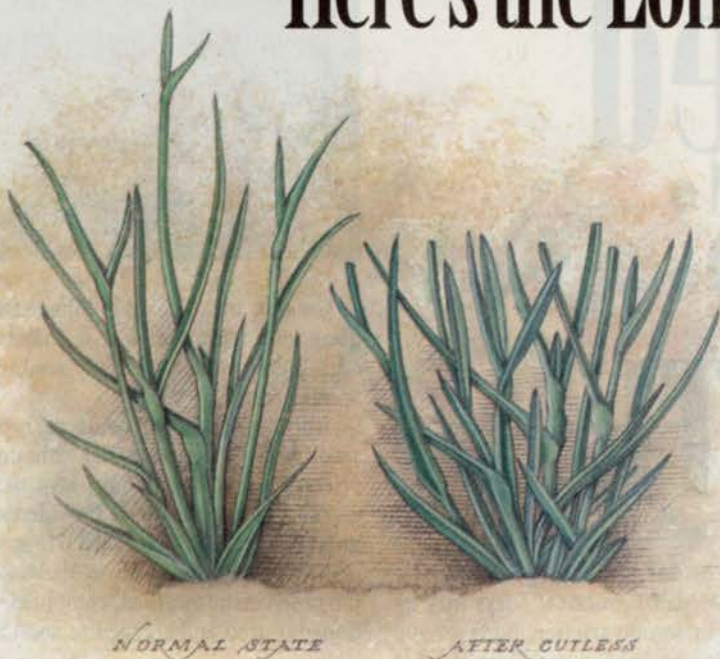
These insects often feed on roses. If there are rose or cotoneaster plants nearby, check for possible marginal leaf notching. This problem is also quite often seen near alfalfa fields.

To prevent this problem in the future, use some sort of screen, cap or lid to prevent the leafcutters from entering the pipe.

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

Mail questions to "Ask the Expert," LANDSCAPE MANAGEMENT, 7500 Old Oak Blvd., Cleveland, OH 44130. Please allow two to three months for an answer to appear in the magazine.

How good is LESCO's Cutless? Here's the Long and Short of it.



LESCO™ Cutless® 50WP Turf Growth Regulator

All growth regulators are designed to do one thing: grow turf that is shorter, denser and greener. Not only does this shorter turf look better, it requires less mowing and fewer clippings. The problem, however, is that most products accomplish this task by suppressing the plant's rate of development, creating a weaker and inferior structure.

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Cutless helps
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and assists bentgrass
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'94 turfseed crops: ADEQUATE

■ Turfseed end users can smile at the 1994 crop. Barring unusual mid-summer rains in Oregon, adequate crops of almost all species and varieties are forecast.

Jerry Pepin of Pickseed West, Tangent, Ore., says, "We're expecting a pretty average perennial ryegrass crop and a slightly below average tall fescue crop yieldwise."

This year, more acreage was planted in perennial ryegrass than tall fescue, in about a 10-to-6 ratio. This is in line with demand and usage, he explains, and corrects, somewhat, over-production of fescues for several years.

"It's not going to be a barnbuster, but

there will be adequate supply," says Eric Nelson of Medalist America. There may be shortages in some varieties, however, he believes. "It's probably a good idea to start booking seed right now if you want it delivered. You may find out that the varieties you want are no longer available."

Advises Tom Stanley, marketing director at Turf-Seed Inc., Hubbard, Ore., "If I were an end user and planning to buy particular varieties I would talk to my seed supplier and see about getting locked in for this fall or for the spring of '95."

"You won't be able to go into the store and buy whatever you want."

Don Floyd, Pickseed West, Corvallis, Ore., predicts more rust tolerance in the next generation of turfgrass.

Even so, weather in the Pacific Northwest—specifically the Willamette Valley and the Columbia River basin, where tens of thousands of turfseed acres are concentrated—has been favorable to production this past year. The turfseed season basically goes from July to July.

"All in all, the crop looks generally favorable," reports Craig Edminster of International Seed, Halsey, Ore.

"We're really in good shape. So far, the weather has been good," adds Mike Robinson of Seed Research

It's probably a good idea to start shopping for the seed you want right now, experts claim.

of Oregon, Inc., Corvallis. About the only disappointment, he says, is that tall fescues didn't put on as many seedheads as anticipated.

Robinson reports some carryover of seed from the previous year although proprietary varieties moved briskly this spring and summer, particularly Providence bentgrass and chewings fescue. He says he's hoping for continued favorable weather so the crop can be swathed, combined, conditioned, tested and shipped as soon as possible.

In the Willamette Valley, fescues grown around the Silverton Hills are harvested first, then by July's end the ryegrasses, and finally bentgrasses in early August. This year, the harvest timing appears to be near normal, an improvement of two to three weeks earlier than last year, notes Dennis Lundeen of Great Western Seed.

"We've been dry here in the valley," says Lundeen. "That's had some effect. But bluegrass, bentgrass and fine fescue crops look, generally, good."

"Ryegrasses might be tight, though, and there may be some *Poa annua* contamination because of fields not being burned and the winter weather. However, most of the poa will be cleaned out by the time the seed gets to market."

In Kentucky bluegrass production country in eastern Oregon and Idaho, Glenn Jacklin of the Jacklin Seed Co., reports common Kentucky bluegrass swathing began in late June. That crop is a bit below average, while the proprietary crop looks good. Supplies of both should be adequate, he believes.

From the marketing end, Gayle Jacklin reports the price for perennial ryegrass should remain strong, tall fescue flat but steady, and creeping bentgrass about the same with limited availability and higher prices for the experimentals.

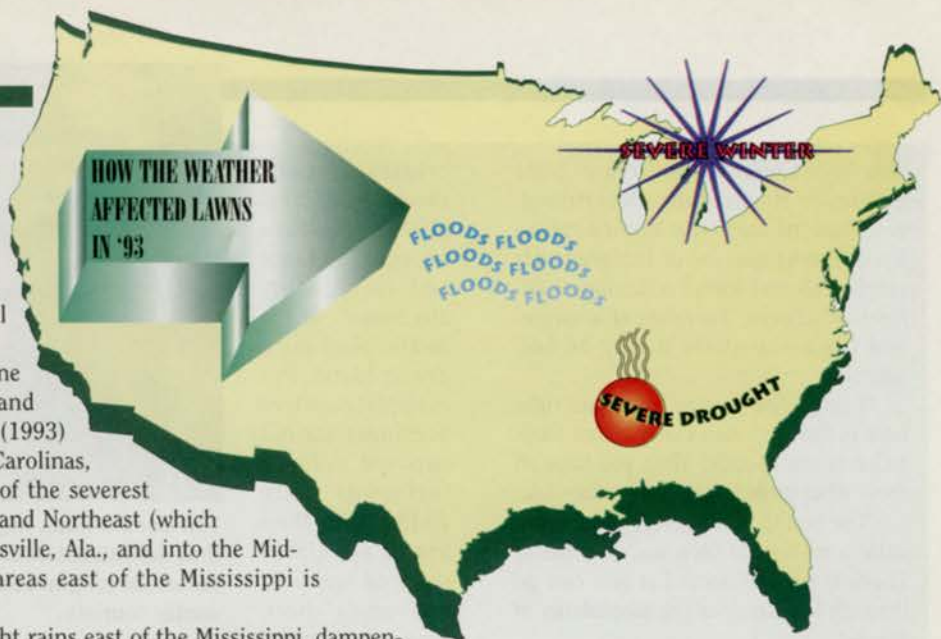


Common Kentucky bluegrass is trading in the 60-70 cent range, about half of what it traded for in the spring of 1993. A large supply of low-priced creeping red fescue from Canada last year reduced the amount of common Kentucky sold in retail mixtures, she reports.

Weather, as it always does, will determine demand for turfseed again this season, and demand could be strong. This past year (1993) saw a severe drought in Georgia and the Carolinas, floods in the upper Mississippi, and one of the severest winters ever recorded in the Great Lakes and Northeast (which killed bermudagrass as far south as Huntsville, Ala., and into the Mid-Atlantic states). Turf damage in many areas east of the Mississippi is almost epidemic.

A cool 1994 spring was followed by light rains east of the Mississippi, dampening seed sales somewhat and suggesting that turf renovations should be full bore early this fall.

—Ron Hall



Dr. Mike Richardson, right, confers with Mike Herod, Herod Seed, Richardson is the new research director at Turf Merchants Inc., Aurora, Ore.



Rick Williams, operations manager, says Jacklin Seed, Post Falls, Idaho, averages about 6,000 experimental varieties planted each year.

■ Lynn Ray says winter kill decimated Tifway 419 bermudagrass fairways in Nashville, Tenn. this past winter. Ray, director of golf maintenance at Nashboro Village, says this happens about once every five years there.

Ray's seen enough turfgrass maps to know that Nashville is in

Ray knows that these maps can't tell the whole story, however. One of the two golf courses he oversees, the one just north of Nashville, carried a snow cover through the bitter cold. It suffered just 10 percent winter kill. Fairways on the exposed course sustained 60 percent damage.

Stretching turfgrass adaptability



the so-called "transition zone." This imaginary 200-mile-wide strip is bordered, roughly, on the north by the Mason-Dixon line and extends in an arc west to the Mississippi, and several hundred miles beyond. It's too hot and humid in July and August for cool-season grasses here, not without an unacceptable chemical budget anyway.

Because his courses were also seeded with perennial ryegrass, golfers continued to enjoy them through the early part of the summer. When the summer is at its hottest, and the number of rounds traditionally declines, Ray says the Nashville course will be sprigged again with a combination of 419 and Quickstand.

"Best guesses," that's

continued on page 10

how Tom Cook, at the Oregon State University Horticulture Department, describes the maps that outline ranges for different species of turfgrass. He emphasizes that there's a significant difference between the range of a species and the areas where it may be *best* adapted.

"I can define four or five zones right here in Oregon," says Cook. "Grass adaptation is site specific. Then you have all these other variables that you manipulate.

"The reality is that every state, every little area has its own micro-climate. There is no five-point list you can go through to determine the adaptability of grasses."

Turfgrass breeders probably know this better than anybody. Their livelihood, in fact, focuses on improving turfgrass adaptability. The strides they make are small and, usually, incremental but they're vital nevertheless, like in the case of bermudagrass.

Says Ray, "just a few degrees difference in hardiness would make a big difference for us."

Susan Samudio, a plant breeder for Jacklin Seed, says, "initially I screen

crosses and (bermudagrass) plant introductions for cold tolerance and turf quality attributes" at the Jacklin plant nursery in Idaho. For example, SunDevil bermudagrass has survived in Idaho turf plots since 1989. Only then are selections screened again. So far, she's been focusing on seeded cold-tolerant varieties like the new Jackpot which scored well in the 1992 trials in Tennessee.

Actually, work has been focused on improving the cold-tolerance of bermudagrass since Dr. Felix Juska's efforts for the USDA in the 1950s, and continuing with Dr. Ray Keene's efforts at the Kansas Agricultural Experiment Site leading to the release of Midiron and Midway more than 25 years ago.

Oklahoma State University's Dr.



Turf-Seed's Russ Hayworth tells wagonload of guests that southwest courses seeding with higher rates of perennial ryegrasses to make courses greener for winter tourists.

Charles Taliaferro and Dr. Ken Diesburg at Southern Illinois University have now mounted ambitious programs to develop bermudagrasses with even finer textures and increased cold tolerance.

While researchers look for ways to stretch the boundaries of turfgrass adaptation, Cook's advice to the purchasers of turfseed is uncommonly simple.

"I look to see what's growing best in an area," he says. "Local knowledge helps a lot."

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If you like the speed and maneuverability of a curved shaft, but you don't like buying a new one every year, check out the GT-2400. Heavy duty bearing box and dual line head take on the toughest jobs. Commercial duty air filtration system for longer engine life. Four-layer cable drive with lifetime warranty. Powered by a 23.6 cc dual-piston ring engine with Pro-Fire™ Electronic Ignition and purge pump-equipped carburetor for fast starts.

Model
GT-2400

Now backed by a commercial warranty one-year and two, five and life consumer warranty, this trimmer's in a class by itself!

For the Echo dealer near you, call toll-free 1-800-432-ECHO (3246).

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Echo Incorporated,
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A CAT WILL ALWAYS LAND ON ITS FEET.

IF YOU WASH YOUR CAR, IT WILL RAIN.

TOAST WILL ALWAYS FALL BUTTERED-SIDE DOWN.

USE SUBDUE AND YOU'LL ELIMINATE PYTHIUM.

ACCIDENT PREVENTION



Perform regular tune-ups and safety checks on power equipment. Follow manufacturer specifications.

You can never do enough

Production, liability, insurance concerns dictate more training and proper equipment.

by Mark Dlugoss

■ In any given year, the number of accidents associated with mowers reaches between 60,000 and 80,000, according to the Consumer Product Safety Commission. While most are attributed to consumers, a growing number of professional operators are included.

One of the easiest ways to reduce accidents in the field is to make sure crews are equipped with personal safety equipment—especially when pesticides are involved.

Using safety equipment is important for several reasons. First, there is the personal protection that should be provided for employees in the course of performing their jobs. Then, there is the loss of worker productivity associated with an injured worker, not to mention the legal repercussions.

"If a worker is injured (in the course of performing his job), he's

not going to help your production," says Tom Delaney, government affairs director for the Professional Lawn Care Association of America. He refers, of course, to the time the employee spends on workmen's compensation. "Then, you always have the possibility of a lawsuit if you are not providing adequate safety for your employees."

Recommended vs. required—

Depending on the piece of equipment used, employees should have the minimum *required* protection. Employers should also strive to outfit them with the *recommended* protection.

For instance, when using mowers, workers should have safety glasses (goggles or face shield), ear protectors (or ear plugs) and gloves for minimum protection. Recommended protection could include hardhats and safety vests.

"Unfortunately, operators become safety-conscious only after they have been hurt in the pocketbook and their workmen's compensation claims start going up,"

says Ron Damgaard, president of Otto Damgaard Sons, Mount Prospect, Ill. He is chairman of the Associated Landscape Contractors of America's safety committee.

Damgaard suggests that an employee, in the course of everyday work, wear boots with a protective toe and non-slip soles,



Eye protection should be your first concern when operating high-speed trimmers.

close-fitting trousers and a shirt. He adds that a worker is headed for trouble if he shows up for work wearing loose-fitting clothes.

It is vital that employees using pesticides are equipped with the proper safety equipment. Numerous state and federal regulations may require special safety equipment when working with restricted-use pesticides (use, storage, mixing and loading). When dealing with such chemicals, you must refer to the MSDS and the pesticide labels for the proper safety equipment.

Pesticide safety—While there are no equipment requirements for general-use pesticides (those purchased over-the-

continued on page 16



Eye-wash stations are required for companies with workers applying control products.



Introducing the new Grand L Series.

Features

Benefits

A new transmission allows you to shift-on-the-go between the four main gears and forward to reverse.

You can work more quickly and efficiently.

A larger-diameter clutch disc improves operating efficiency and has a longer life.

You won't spend as much on maintenance costs.

The independent PTO can be switched on and off without stopping.

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A new low-noise, low-emission, E-TVCS diesel engine delivers more power with higher torque rise.

You can get more work done in less time.

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You can move larger loads with less effort.

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For more information, write to: Kubota Tractor Corporation, P.O. Box 2992, Torrance, CA 90509-2992. Financing available through Kubota Credit Corporation.



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19

Dylox. If you don't know why that's

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important, we'll bring you up to speed.





DYLOX® insecticide controls all species of white grubs in as little as 24 to 48 hours. It doesn't waste time. Then it doesn't hang around.

In these times, that's reason enough to use DYLOX. But there's more. It has no label restrictions on turf grass species or sites. So, you can treat your tees, greens and fairways for grubs, as well as cutworms and sod webworms. And with the DYLOX 80% powder formulation, you can also treat your flowers, shrubs and trees for armyworms, bagworms, pine tip moths, webworms and stink bugs.



Add to that the fact that it's a low-odor compound available in 6.2% granular as well as 80% water soluble powder. Now you can understand why it is the fastest growing grub insecticide on the market.

For more information, contact Miles Inc., Specialty Products, Box 4913, Kansas City, MO 64120. (800) 842-8020.

The time is right for DYLOX.



Circle No. 121 on Reader Inquiry Card



Sprayer manufacturers either carry their own protective clothing lines, or can help you obtain the proper gear.

SAFETY EQUIPMENT

counter), restricted-use pesticides require that "certified" applicators should have appropriate dress.

"Start with a wide-brim hat, long-sleeved shirt, long pants and chemical-resistant gloves," suggests Dr. Dennis Murphy, professor of agricultural engineering at Penn State University. "Use unlined rubber, latex, neoprene or nitrile gloves. Never use leather or cloth. Wear sturdy work shoes or rubber boots, not sneakers or sandals."

Applicators also must—by law—wear personal protective equipment when handling pesticides. Again, applicators are required to consult the MSDS sheets and pesticide labels to determine what protective clothing and equipment is necessary.

"Labels today are becoming more informative on this issue," explains Win Hock, director of the pesticide education program at Penn State. "The only thing you can do is generalize by rule of thumb—the pesticides of lesser toxicity usually don't have quite the requirements for protective equipment, as opposed to the ones that are highly toxic. Then, you frequently have to have a full complement of protective clothing."

Hock recommends that *every* employer maintain a full complement of protective clothing and equipment. "It doesn't mean you have to use it on every occasion," he points out. "A person who is a pesticide applicator should have at least everything available in the event it is needed."

Train, train, train—Another important piece of safety "equipment" is educational in nature. Many green industry associations and manufacturers have complete libraries of literature, safety programs and videos. This material covers everything from how to properly use equipment to correct maintenance procedures.

Delaney urges employers to use training as a piece of safety equipment. Not only does a safety program make good personal sense, he says that it just makes good business sense.

"To be a good businessman, to protect yourself from liability and to care about your employees by having them properly trained—all make good business sense," says Delaney. "Whether things are required by law or not, it behooves a good businessman to operate in a responsible, professional manner."

—Mark Dlugoss is a freelance writer in Cleveland, Ohio. This is his second piece for *LANDSCAPE MANAGEMENT*.

PESTICIDES

- Long-sleeve shirt
 - Trousers
 - Waterproof trousers
- (Depending on the formulation and the chemical used, each pesticide—listed on its label and MSDS sheets—lists its required equipment protection, which could include such equipment as respirators, face shields or goggles; overalls or waterproof pants and jacket; waterproof, wide-brimmed hats; waterproof apron, waterproof gloves, and waterproof boots.)*

CHAIN SAWS

- Helmet/Hard hat
- Safety glasses with side shield; goggles or face shield
- Hearing protection
- Chain-saw-resistant pants/chaps
- Chain-saw-resistant gloves, jacket and boots

LAWN MOWERS

- Heavy-duty shoes with non-slip soles
- Long pants
- Close-fitting clothes
- Gloves
- Safety glasses
- Goggles
- Face shield
- Safety Vests
- Dust mask in dusty conditions
- Ear protectors/ear plugs

LINE TRIMMERS

- Leggings/chaps
- Face shields (or combination face visor made of nylon mesh, earmuffs and goggles)
- Hearing protection
- Debris shields (kept on trimmer)

MISCELLANEOUS

- Support belt for heavy lifting
- Ear plugs or ear muffs for noise prevention
- Sun protection:
 - Wide-brimmed hat
 - Long-sleeved shirt
 - Sunscreen with a SPF of 15 or more
 - Sunglasses

LM REPORTS

Safety accessories

Green industry work presents many safety challenges, which some of these products address.

■ We know you have insurance, but have you extended your concern for your workers by making sure they work safely?

Job safety extends beyond making sure you keep your hands away from spinning mower blades. In some jobs, like operating a chipper, the entire body is at risk.

Safety equipment is itself a huge industry, so there's no shortage of sources for all kinds of gear to protect your people in all kinds of work. Some are so obvious we risk insulting your intelligence by even listing them; others may not have been considered. Any of the catalogs mentioned here will be a good starting point.

And remember: when you protect your workers, you protect yourself.

—Terry McIver

Body harness protects against falls

The Direct Safety Co. carries Miller harnesses which allow the legs to absorb the shock of a fall.

The lightweight full body harness features a



tongue-buckle waist strap with adjustable shoulder and leg straps. It can be used with single point lifeline in the back or a Y-shaped yoke lifeline from the shoulders.

The Direct Safety catalog, shown at right, contains many safety-related articles for protection on the job, such as gloves, rehydration drinks, and eye and ear protection.

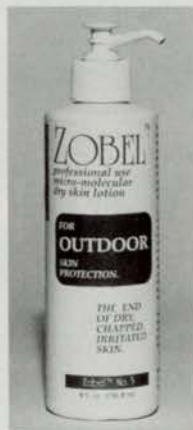
Circle No. 311 on Reader Inquiry Card



Aprons supplement hand, arm protection

Aprons from Rainfair, Inc. are large enough to protect the front of the body from the shoulders to below the knees against splashes and spills. They're available in various materials.

Circle No. 312 on Reader Inquiry Card



Skin protection counts

Zobel dry skin care lotion complements sun protection products.

The lotion protects against the effects of wind burn, rain, snow, sleet, petrochemicals, strong odors, stains, harsh soaps, detergents, disinfectants, fertilizers, dirt, pool chemicals and frequent hand washings.

Circle No. 313 on Reader Inquiry Card

Tourniquets guard against leaks and spills

Drum tourniquets are an important part of control product storage and handling.

UltraTech's tourniquet is a quick and effective way to stop leaks in punctured or corroded drums.

This "high-tech bandage" uses magnetic or suction technology to compress a chemical-resistant, flexible pad against the leaking area.



Stainless steel backing plate is flexible and may be applied in any direction.

The magnetic style is used with carbon steel drums; the suction version adheres to stainless steel or non-textured polyethylene drums.

No straps or tools are needed.

Circle No. 314 on Reader Inquiry Card

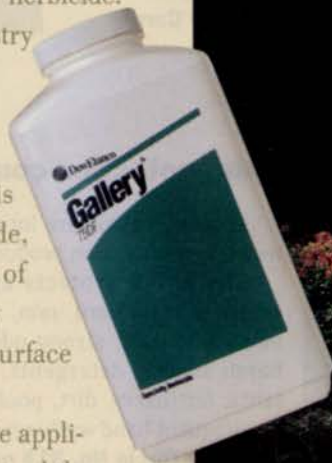
Getting better weed control in your turf and ornamentals doesn't require the use of more herbicides.

In fact, like most turf and landscape managers, you probably want to use less

herbicide. Which is why you should use Gallery® herbicide.

The unique chemistry of Gallery can reduce the need for multiple applications of herbicide. Because Gallery is a preemergent herbicide, it stops the emergence of weed seedlings. So they never even break the surface of the soil.

In a single, low-rate application, Gallery can control the growth of 95 broadleaf weeds in



A Story Straight From Crooked Stick.

By switching to Gallery the superintendent at Crooked Stick Golf Club in Carmel, Indiana, reduced herbicide applications on his fairways from five a year to one. The very particular PGA officials who inspected those fairways for the 1991 PGA Championship raved about their outstanding condition.



ornamentals or turfgrasses for up to *eight months*. That means you can go all season long without worrying about whether spurge, oxalis, plantain or other weeds will show up to mar your landscapes and turf.

Other herbicides would require five applications to deliver season-long control. Gallery delivers all season long with only one application.

Although Gallery is activated by water, it remains stable on the

soil surface without rain for up to 30 days. It resists breaking down by sunlight, so you can be assured of maximum performance even under dry conditions. Gallery doesn't have any of the harsh effects of other

Gallery. For the to do more





ose who want e with less.

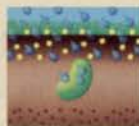
long-residual herbicides. And there's minimal risk of off-target damage.

When you use Gallery along with Snapshot* and Surflan,* you can now get the long-term weed control you want in sensitive areas

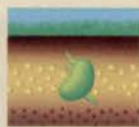
where ornamentals, shrubs, trees, perennial flowers or turfgrasses are growing. Snapshot controls both broadleaf and grassy weeds in ornamental beds for up to eight months. It is labeled for over-the-top

application of woody ornamentals.

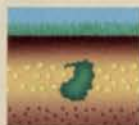
Of course, you've got more than broadleaf weeds to worry about. To



Activated by water, Gallery creates a control area around weed seedlings.



Gallery shuts down the growth process for up to 8 months.



With Gallery, seedlings die before you ever see them.

prevent grasses that invade beddings, combine Gallery with Surflan herbicide to create the ideal long-term weed management program. Surflan is gentle on labeled established plants, as well. And when used according to label directions, it can be sprayed over the top of more than 200 different species of established ornamentals, trees, shrubs, ground covers and field-grown fruit trees.

Our 40-page book, The Nursery And Landscape Guide To Responsible Pest Control can fill you in on developing your own weed management strategy. It also contains useful information on controlling insects and turf diseases more effectively. For your free copy, return the coupon or call our toll-free number. And learn more about using less herbicide.

Send me the following Management Guide(s):

- Cool Turf
 Warm Turf
 Nursery and Landscape

Mail to: DowElanco,
 P.O. Box 33489,
 Indianapolis, IN 46203-0489.
 Or call: 1-800-474-4534

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Company _____

Business Category: Nursery Lawn Care
 Municipal Landscape Contractor Golf Course

Address _____

City _____ State _____ Zip _____

Phone (_____) _____



The chemistry is right.™

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Keep out noise comfortably

Three styles of ear muffs from 3M feature multiple position ear cups. Replaceable ear cushions and molded noise suppression inserts provide for longer use-life and improved hygiene.



Circle No. 315 on Reader Inquiry Card

Back support limits pain and strain

Yard and garden work doesn't have to be a pain.

The OK-505 industrial back support from OK-1Mfg. Co., Inc. is made of a breathable, durable power-knit nylon and elastic webbing.

Interior rubber stitching helps prevent



"ride-up," no matter what the activity.

Circle No. 316 on Reader Inquiry Card

New safety manual from ALCA

The Associated Landscape contractors of America has released its ALCA Safety Resource Manual.

The manual provides the information any landscape company needs to organize a complete, customized safety program.

The user-friendly manual includes 11 chapters, ranging from implementation to evaluation.

FOR MORE INFORMATION, CONTACT ALCA, 12200 SUNRISE VALLEY DR., SUITE 150, RESTON, VA 22091; (703) 620-6363.

A-to-Z outdoor protection

Forestry Suppliers, Inc. has a 500-page catalog with items for first aid and body protection.

Gloves, vests, marking tapes, body suits and signage are included. Call toll free, (800) 647-5368.

Emergency eye washes, drench showers

Murdock, Inc. of Cincinnati specializes in water delivery systems, including emergency drench showers and eye-washers.

Several models are available.

Circle No. 317
on Reader Inquiry Card

Warn workers, onlookers of dangers at job site

Barricades and warning tapes from Thor Enterprises remind workers and passersby of dangerous areas or the location of utility lines.

Warning tapes protect against property damage, emergency outage, labor and equipment expenditures, and most importantly, physical injury that can result from damaging a utility line.

The company's FenceGard safety fencing and Barri-Kit safety system guarantees you comply with OSHA regulations for protection around construction sites.

Circle No. 318
on Reader Inquiry Card

Arborist training in electrical hazards

New OSHA regulations expand the training and certification requirements for utilities and line clearance contractors whose employees regularly work within 10-ft. of energized lines (OSHA 29CFR, Part 1910.269).

OSHA 29CFR Part 1910.331 affects non-line clearance employees. Those who do not regularly work within 10-ft. of energized wires must still be able to identify overhead electric wires and potentially energized equipment, know the safe working distance to be maintained from various electric hazards and know what to do in case of an accident.

The ACRT Institute of Arboriculture and Urban Forestry offers two training programs for both types of workers. Contact ACRT at (800) 622-2562 for more information.

Comprehensive program covers all safety bases

Zee Medical offers a set of 12 safety program modules for people who aren't full-time safety management or training experts.

"Zee Advantage" provides clear safety and ergonomic solutions to the challenges facing small to medium-sized businesses.

Topics include:

- preventing back injury
- fire extinguishers
- respiratory protection
- sight/vision protection

Circle No. 319
on Reader Inquiry Card

Did you know?

As of April 15, 1994, employers using pesticides in their businesses are required to post—at a central location—three types of information:

- a pesticide application list
- emergency medical information
- pesticide safety poster

Gempler's, Inc. of Mt. Horeb, Wis., sells a compliance kit (\$11.95) that contains these three items, and a 156-page Reference Guide on the Worker Protection Standard. Contact the company at (800) 382-8473.

The next generation of perennial ryegrass. For a number of reasons.



Advent perennial ryegrass has shown clearly that it's a new class of turfgrass in Rutgers University performance trials. Advent scored top marks for heat and drought tolerance, improved disease resistance and high density. Which makes low-growing Advent the top seed for home lawns, golf course fairways, tees and roughs.

In dormant winter grass overseeding trials in the south, Advent's high turf quality rating was superior to Palmer, Manhattan II, Pennant, Prelude, Premiere, Omega II, Citation II and Dandy plus a host of others. Advent is an excellent choice to overseed an entire golf course.

JACKLIN
Seed Company

advent

JACKLIN GREEN SEAL QUALITY
TURF-TYPE PERENNIAL
RYEGRASS

Request Advent by name from Jacklin. Or simply ask for the next generation of perennial ryegrass. We'll know what you mean.

Practical solutions for multi-use fields

by Dale Getz
University of Notre Dame

■ At the University of Notre Dame, many of the athletic fields are used for practices and actual games, and we also have 18 acres of intramural fields used for softball, soccer, football, lacrosse and rugby.

Fields are heavily used from early spring through mid-October, with play normally completed by Dec. 1.

The majority of our fields are in flat, windy areas. The turf holds its color and we've experienced no winter desiccation. Generally, we have snow cover most of the winter.

No. 1: aerate—Aeration is the most important practice in the maintenance program. It loosens the soil, relieves compaction and promotes root growth.

We core aerate, then drag the cores until approximately 1/2 to 3/4 of the soil filters back into the holes. We then apply seed and a starter fertilizer. We drag the field again, pulling the seed and remaining core soil into the holes.

If the thatch portion of the core is small, it can be left on the field to decompose. We pick up excess thatch debris using the high setting of a sweeper. If you can't use a sweeper, and you're satisfied that the seed has been well covered, you can blow excess thatch material from the field with a power blower. Work from the center of the field, moving the thatch to the perimeter where it can be raked up and removed.

Budget and personnel availability usually limit our aerification to once a year, in the fall.

Sports fields need a light layer of thatch to provide an extra cushion of protection against the wear of play. We power rake intramural fields from the hash marks out, when necessary. Heavy play reduces thatch build-up between the hash marks. We also power rake the thick, bluegrass softball outfield to reduce susceptibility to disease.

When standard aeration and overseeding procedures can't be completed, applying seed for the players to "cleat in" can

provide adequate seed-to-soil contact.

All aeration, power raking and dethatching procedures are done prior to seeding. Though our optimum seeding span is from mid-August to the first of September, intramural fields are used every day during that period. Depending on the conditions, seed applied prior to Oct. 15 will still make fall growth here.

We've also had good results with dormant seeding. Seeds sprout in the spring, long before wet weather or lingering snow cover would allow field access for planting. Lighter early-spring field use allows the



Multiple striping patterns are an obvious necessity on multiple use fields.

young plants time to establish.

If funding and a break in the schedule allow it, we'll aerate and overseed practice and intramural fields in mid-spring, too.

No. 2: seed—We use perennial ryegrass for multi-use fields. Perennial ryegrass is up in 4 to 5 days, compared to 15 to 21 days for Kentucky bluegrass. With more than 5 percent perennial ryegrass in a blend, the aggressive rye will shade out the emerging bluegrass. Perennial rye takes abuse better, giving the turf toughness; bluegrass has better recuperative qualities, extending field life.

We use Scotts Perennial Ryegrass 100

Blend that contains 39 percent Accolade, 30 percent Pennant and 28 percent Ovation.

No. 3: fertilize—Dollar costs and personnel availability determine the fertilization program.

Generally, we apply a minimum of 3 to 4 pounds of nitrogen and 3 pounds of potash on the practice and intramural fields during the year. Annual soil testing has shown that we have adequate available phosphorus. Following overseeding, however, a starter fertilizer (8-15-24) supplies the needed boost of phosphorus.

Mid-July is the last major N application on fall sports fields to avoid growth spurts and overly lush turf. Excessive growth means clippings must be removed. Overly succulent turf seems to produce a slicker field. Our fertilization program resumes in mid-October. We plan to work more of the polymer-coated, slow-release nitrogens into the program, but even with these materials, there is a certain flush of growth that we

want to avoid during play periods.

No. 4: weed control—A good stand of turf is the best defense against weeds. When chemical controls are necessary, we choose products that work well with the least detrimental impact on the environment.

Pre-emergence applications are used only on fields that won't be overseeded, and only from the hash marks to the field perimeter. A combination fertilizer/pre-emergence material is used to save labor. Post-emergence controls for grassy weeds are kept on hand, but we haven't had to use them.

continued on page 24

You want a mower as unique as your needs.

As a turf care professional, you understand that your grounds have a character all their own. In size, terrain and complexity.

Toro responds with the Groundsmaster® 200/300 Series. The most complete line of trim mower configurations now available.

Including the right one to help you maneuver in any area for a superb quality of cut.



Groundsmaster® 224 offers the extra power of a gas engine to handle challenging conditions all four seasons.

Groundsmaster® 325-D is available in two or four wheel drive to get the job done on all kinds of terrain.

Choose from six diesel or gas powered traction units. Variable cutting widths from 52" to 72". Side discharge, rear discharge or Guardian® Recycler®. Plus four-season versatility for snow removal, debris cleanup and more.

The Toro Groundsmaster® 200/300 Series. Inspired by our 75 year partnership with turf care professionals.

Any other choice is groundless.

TORO

Helping You Put Quality Into Play.™

For more details, contact your Toro Distributor.
1-800-803-8676, ext. 176

The Gateway Arch in St. Louis commemorates America's westward expansion.

Broadleaf weed control is most effective when used in the fall, as late as December first in northern Indiana. Easily-controlled weeds, such as dandelion and buckhorn, respond to lower application rates. On tough weeds, multiple application often can be avoided. Tender growth quickly absorbs the herbicide and actively growing roots distribute it more effectively.

On multi-purpose fields, broadleaf weeds are spot-treated as necessary in the spring. If weeds aren't treated prior to their prime blooming period, frequent mowing may keep them in check until fall treatment.

No. 5: mow—The practice and intramural fields are mowed primarily with a rotary mower because it's faster. If the blades are kept sharp, the rotary mower delivers a smooth, decent cut. There's no time—or need—to pick up clippings unless weather-interrupted mowing produces excessive amounts.

No. 6: irrigate—All Notre Dame fields have automatic irrigation systems. Even on low-budget facilities, irrigation systems pay for themselves with the flexibility they provide in maintenance procedures.

—Dale Getz is athletic facilities manager for the University of Notre Dame, Notre Dame, Ind. He's an active member of the national Sports Turf Managers Association (STMA) and is college/university director for the Midwest Chapter of the STMA.

Market your advantages

■ Competing against the multi-million-dollar advertising budgets of larger companies can be near impossible. But small businesses have two marketing advantages, according to the National Association for the Self-Employed:

1) You can speak directly to your audience in their language. Your advertising can focus on local concerns and answer local needs. Larger companies must focus on mass appeal.

2) Because small businesses concentrate on a specific local or vertical group, they can better focus their advertising and public relations campaigns.

Unlike large corporations, small businesses can hand deliver flyers. Spot advertising in weekly shoppers is inexpensive and very local in scope.

Hosting a special event creates goodwill and promotes your sales. Large companies do special events for name recognition, which does not directly affect sales.

For more information, phone (800) 232-6273.

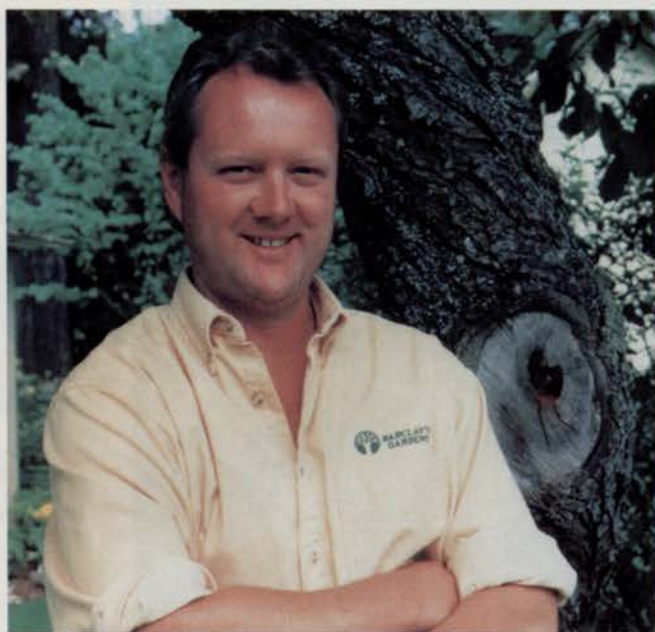
The key to quality: 'a few good people' with varied tasks

■ A quality company must have quality employs, insists Barclay Bullock of Portland, Ore.

"If we pay a higher wage and compensation package, we'll attract people that are more dedicated to the customer," says Bullock. "The customer gets better service

had the work but we just lost efficiency."

The addition of a new construction manager to oversee the company's six crews, however, and an increasing management role for partner Jodi Nordstrom is launching the company to the next level, he believes.



Barclay Bullock building his Portland, Ore., company "one residential customer at a time."

and the landscape company succeeds. That's why we pay a higher wage than the industry average, and we provide benefits like medical, dental and vacation time."

Now, seven years after founding his landscape company, known as Barclay's Gardens Inc., Bullock is even more firmly convinced that solid employees drive exceptional customer service.

That's because Barclay's Gardens, with about 30 full-time employees, has emerged as a residential landscape leader in Portland, and should approach and, perhaps exceed, \$1.5 million in sales in 1994—70% build/install, 30% maintenance.

"Last year was a tough year," admits Barclay from behind the desk in the tiny frame office building (smaller than most house trailers). "I think growing pains finally hit us. We didn't have the people in place and trained for our growth. We

"We're getting to the point where we do our own brick work, where we do our own water features. We don't do a lot of carpentry yet, but we're starting to do more of it. I think the employees enjoy doing different things," he explains.

"Actually, a landscaper is a plumber. He's an irrigation specialist. He's an electrician because we put in night lighting," continues Bullock. "He's a grader. He needs to know carpentry, stone work, and that's in addition to putting in plants. This is one of

the most technically challenging industries in the United States.

Certainly, there's a market for quality landscaping in Portland, says Barclay. After all, the city's nickname is "The Rose City."

"People take a lot of pride in their landscapes here," says Barclay. "They will pay for quality work. If you can combine that with a reputation for service, and deliver what you say you can, you can write your own ticket."

Barclay began his landscape company on just that premise seven years ago. He also relied on the customer-driven, day-to-day service skills he practiced as a former ChemLawn technician and manager in Portland, Seattle and, finally, Long Beach. In fact, it was his six-month sojourn in Long Beach that chased him from lawn care and into his own enterprise back in Portland.

UNPRECEDENTED

* Showing a marked departure from *Previous Practices*

THE ACT OF CHOOSING...

Technology now brings you choices in your fertility program that were not available a few years ago. Previously, industry standards such as methylene urea nitrogen were only available in granular form. Now there is an exceptional source of controlled release nitrogen in a

liquid concentrate. Growth Products is pleased to release Nitro-30 SRN (30-0-0)[™] an unprecedented nitrogen source for consistent release with no surge growth. This liquid source of methylene urea contains a variety of shorter chain nitrogen polymers which provide optimal initial and residual turf response.

PROFESSIONAL LIQUID FERTILIZERS • MICRONUTRIENTS • NATURAL ORGANICS

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Circle No. 110 on Reader Inquiry Card

"I was used to residential service because of ChemLawn. Actually, I love working with homeowners and residential work has provided us with a nice base.

"We do very little commercial," explains Barclay. "And, even though we've built this business pretty quickly, it's built on small but solid building blocks. We're not going to lose one client tomorrow and hurt our business."



Ken Meyer of Barclay's Gardens prepares residential property for a new lawn.



Portland's Waterfront Park gets facelift from one of six Barclay's Garden crews.

But keeping every client satisfied, impossible as it seems, is crucial to Barclay's Gardens which relies on referrals and word of mouth.

"Our marketing is our image—clean trucks, uniformed employees, how we take care of each customer, our response time, our follow up," adds Barclay. "The other strength I think we have is our relationship with landscape architects. Often they ask us to bid their work. They're looking for someone who's competent, who will put in their design as they designed it, and follow up

and take care of their customers."

Barclay finds himself delegating more and more day-to-day chores—"I don't need to decide whether we need a Toro or a Honda mower. The crews can decide that—as he builds relationships through the Oregon Landscape Contractors Association and the Associated Landscape Contractors of America.

"I never forget that this company is the work of a lot of good people's efforts. I might be leading it, but I can never do it by myself."

5

irrigation services to offer your clients

by Paul Poszluzny

Help customers conserve water and have attractive lawns and landscapes with irrigation system advice and service.

■ The first challenge for the landscape pro is to convince that customer to get a quali-

ty system initially, a system that will function properly for years.

Residential clients, particularly, will appreciate this. Their appreciation will grow year after year as you help to keep the system operating efficiently and effectively.

Here are five irrigation services to provide to these customers:

1) Timer control adjustment. Ideally, watering should take place between 2 a.m. and 7 p.m. Evaporation is greatest while watering during midday.

Watering in late afternoon or early evening creates conditions that increase

the likelihood of lawn diseases.

2) Sprinkler head adjustment. Dowsing driveways and sidewalks wastes water. Sometimes it's also a safety hazard.

3) Line and sprinkler head repair. Some of the factors leading to line and sprinkler damage—freezes, plows, improper winter maintenance.

4) Rain sensor recalibration. Rain sensors, an excellent idea for all systems, guarantees that the system doesn't duplicate nature's work, nor creates extra expense or problems by overwatering.

5) Winter maintenance. Blow out the system to remove 75 percent of the water and shut down the clock to avoid accidental damage during the winter.

If you follow these procedures year after year, your client's irrigation system should provide many years of reliable service and beautiful grounds.

—Paul Poszluzny is operations administrator for Coronis Landscaping, a Nashua, N.H.-based full service landscaping and landscape design firm.

Dressing up your financial statements

When you must prepare financial statements for someone's eyes other than your own, first read them and see if they are telling the story you want.

by Dan Saunier

■ You, as a businessman, on occasion may have to provide financial information to outside parties. Generally speaking, you will only do this when you have no choice (i.e., the government) or when you want something.

In the case of government reporting, we suggest the minimum. Give them what they can legally ask for and ignore the rest. Too much information is worse than too little information.

The other times you provide information, you are trying to get something. You may be trying to establish new or additional lines of credit, enticing new ownership contributions, or simply showing that you are capable of handling a lease commitment. In each case, you want the person reading these financial statements to be impressed with your business.

In most cases, you need the details of your financial situation. For instance, for new projects, you want to be able to determine their financial impact, in which case the "details" are really important.

Details, however, are not necessarily needed when you want to impress other people.

The two main statements are the income statement (revenues and expenses) and the balance sheet (assets and debts).

Income statements—The rules for preparing income statements differ from those of preparing balance sheets for outside eyes. Here are some tips:

1) Reduce details as much as possible. Consolidate the operating or income statement. The key numbers are sales, gross profit, inventory, wages, rents and other operating-type numbers.

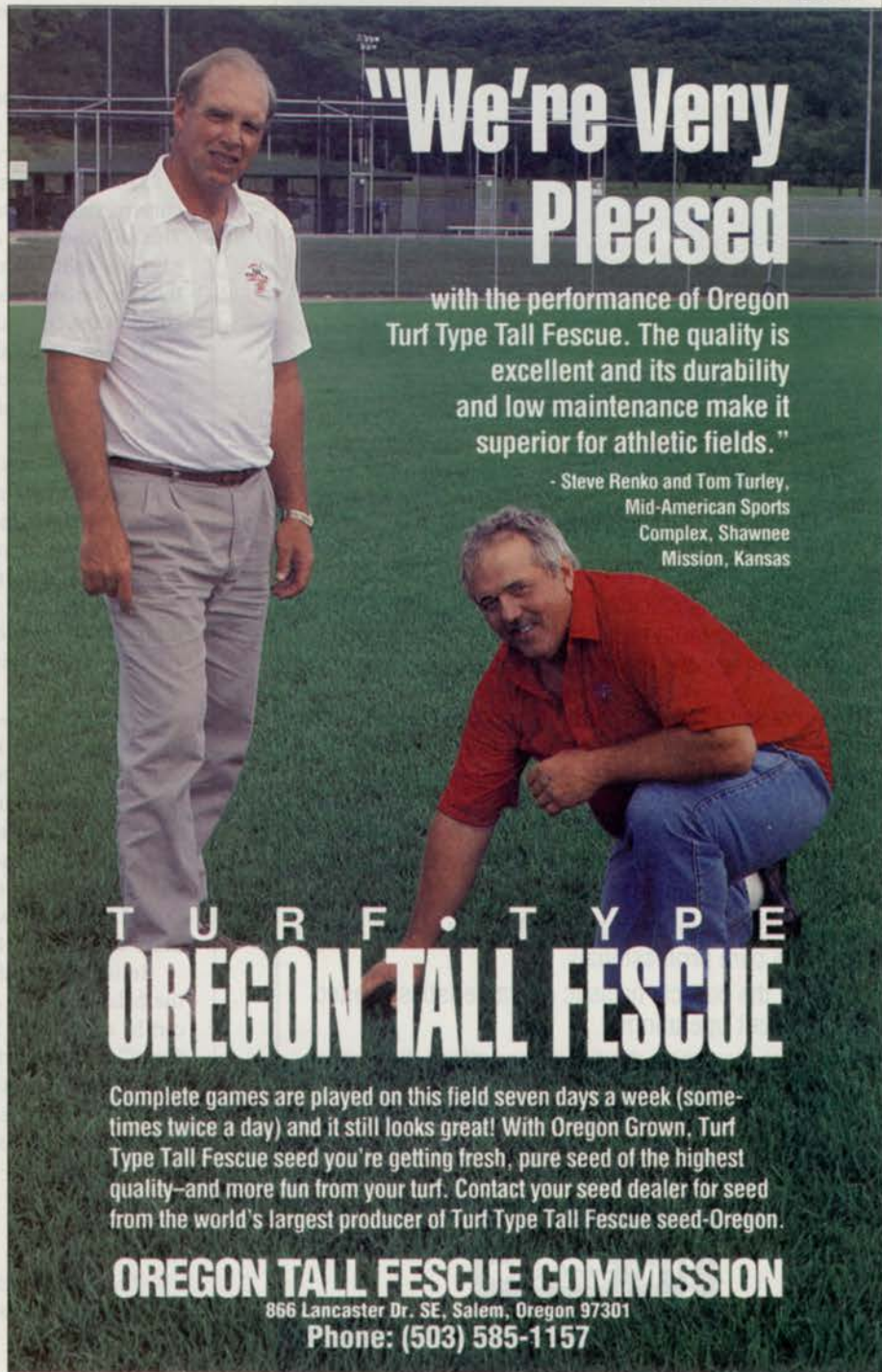
There is no need to separate all of the different levels of payroll such as ownership and management. These numbers can be provided separately, if needed. You should also strive to reduce the number of lines of sales—consolidate it to one line if you can. You want to show that you have a viable operation, not to invite comment on a sideline sales category.

2) Separate core activities. Sometimes you'll need to separate items. Few businesses work on one idea at a time. They

often mix different activities into the same operation. Examples of this include sub-leasing, renting signs, wholesale activity and sideline activities.

When one of these is combined to the core activity of, say, a mower rental business, you hide the true operational results of the main business. The other person reading your statement is not interested in sidelines; he or she is interested in the manner in which you make your money.

continued on page 28



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- Steve Renko and Tom Turley,
Mid-American Sports
Complex, Shawnee
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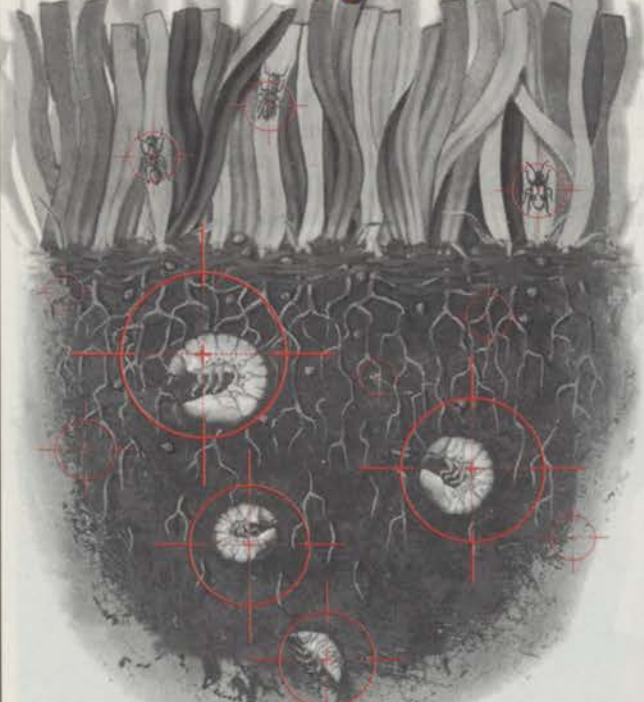
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Circle No. 103 on Reader Inquiry Card

Sometimes these little adventures cost us money, or are still in the development stages. This being the case, they make the core business look bad—when, in fact, it is doing well enough to support these outside activities. You need to show the reader of the income statement how well you are doing with the main business and how much it contributes to bottom-line expenses. You can show these other activities below the line called income from operations.

3) Use comparative information. Many outside readers are trying to determine trends in your business. Show growth rates and management accomplishments.

Commonly, companies show the prior year in their statements. There is nothing wrong with the consolidation of a number of years on one page. Here you can see how the company has grown and the cost controlling measures that you may have put in it.

Balance sheets—Not all of the same rules apply for balance sheets. Here some additional detail can be useful, but do not try to overwhelm the reader with too many details. Some tips:

1) Show the various assets you actually have. Show the key current items such as inventory, accounts receivable and cash. This will show the outside reader how liquid you are. Show your payables split among remittances required by governments and those to outside trade suppliers. If any money is due to the principals of the company, show these separately.

2) Reduce details in the fixed asset area to the main categories of: land, building, equipment and leasehold improvements. Group all of the accumulated depreciation and amortization together.

Outside readers should be able to easily extract how much you own and in what general categories it exists. They should be able to see how much you owe to outsiders and what type of outsiders they are. Finally, they should be easily able to determine how much you have invested in the business.

In the balance sheet, there is a delicate line of too much information and too little. Help the reader understand where your business is without trying to show them where every piece of stock is located.

Some don'ts—Avoid—at all costs—inflating sales and income to impress someone. First, the numbers will stop making sense to a skilled reader; second, by exaggerating, you might be opening yourself up to legal action. Certainly you are permanently losing all credibility with the outside reader.

Next, while non-cash expenses such as depreciation is tempting to exclude (after all, it does not result in cash), resist it. A skilled reader knows it should be there, and in its absence, will make assumptions that are not in your favor.

Resist the transfer of expenses from the income statement to the balance sheet. Accounting rules can tell you what expenses can be capitalized, but readers on the whole are looking for the "hard" assets. Certainly, set up a legitimate prepaid expense (where the value of the expense extends into future periods), but do not overdo it. Readers catch on.

Read your own statements and see if they are telling the story you want them to.

—The author is chairman of Padgett Business Services. This is one in a series of articles he is writing about accounting for LANDSCAPE MANAGEMENT.

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TECH CENTER

Fall fertilization: going beyond N, P and K

Provide a solid base for next year's fertility program by giving attention to elements related to soil structure, not just turfgrass growth.

by Dave Wilber

■ Fall is the time to examine, evaluate and, if necessary, make changes to your turf fertilization program.

Fall fertility regimens are different in that they do not always have to do with the common fertilizers we may use to stimulate plant growth during the growing season. Late season fertilization means that we are in a position to feed and work on the soil.

As the summer heat winds down, turfgrass managers naturally take a breather from the dog days that have had them cornered during the past few months. Turf recovery is evident, and in most cases, the problems of the summer can disappear as the cooler nights set in.

Fall is the time to test and evaluate. Take a soil test of areas that were good and areas that were poor during the season, perhaps in addition to your regular testing program. The analysis is important as a first look at the balance of the soil after the past season's fertilization and irrigation.

The favorite test during this time looks at exchangeable rather than extractable nutrients. The difference is in the testing methods, but it leads to a more long term look at the soil profile. Exchangeable testing (reporting the standard soil test numbers, focuses on plant food nutrients called cations. The positive charged cations we are most concerned with are:

- calcium
- magnesium
- potassium

- sodium.

Hydrogen and some other base elements in small quantity also figure into calculation of base saturation.

The importance of balance—Base saturation is by far the most informative reporting standard. As testing and reporting evolved there was work done to support the concept of nutrient balance. It was easy to see that when a soil was in balance it is able to support plant life to the greatest extent that nature will allow.

Potassium, rarely found in excess, can be overlooked during fall applications.

In the early 1950's, Dr. William A. Albrecht, a soil science professor from the University of Missouri, announced that a balance of the following nutrients was the optimum formula, based on his extensive work on the subject:

- calcium—65%
- magnesium—12%
- potassium—5%
- sodium—1%
- hydrogen—10%

The remaining 7 percent is found in other base soil elements.

The fall soil test may and probably will show a difference in soil cations, other than what is listed above.

Fall is the perfect time to adjust these numbers. Adjustment is based on the cation exchange capacity of the soil (CEC). A low CEC soil needs fewer actual pounds of soil fertilization than a high CEC. Over application may hurt, and under application may not be sufficient. A soil with a CEC of 4 may hold only 1600 lb./a of calcium as opposed to the 20 CEC soil that holds 8000 pounds of the same calcium.

Always ask if the recommendations are leading toward balanced soils. If they are not, then ask what the goal may be. A good

program will move toward improvement.

The importance of lime—A soil low in calcium should be limed. Lime is misunderstood, and should be viewed as more than just a pH adjuster.

The pH of a soil can be raised by applying any positively-charged material. Lime was used in the early days of agriculture to raise the pH of soils sufficient in calcium.

Dolomitic lime supplies both calcium and magnesium. Simply using pH as a guide to soil amendments is not enough, and fails in most cases to bring a soil to balance. In his work, Dr. Albrecht found that a balanced soil also had a pH of 6.2 to 6.8, regardless of where it came from.

Excessive sodium can lead to a high pH. If calcium is low, lime and gypsum can be used to remove sodium from the exchange sites. In this case, we lime the high pH soil to balance the soil.

Potassium is rarely found in excess and can be one of the most overlooked materials available for fall application. During the season, most fertilization has a goal of an equal amount of potassium and nitrogen applied. This may not offset a deficient condition and require additional potassium. The resulting cold and heat tolerance are well worth the money spent.

Late-season fertilization should be focused on the development of a solid base to support the efforts of fertilization during the following season. This may mean looking at fertilizer elements that are related to soil structure and not just turfgrass growth. There should be no guesswork with good soil testing.

Examine the soil carefully. The time spent will pay off in the early days of spring and the hot days of next summer.

—The author is an independent consultant specializing in soil and plant nutrition. A former golf course superintendent, Wilber is a member of the Brookside Laboratory Association. He writes from Grass Valley, Calif.



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Turfseed breeders embrace endophytes

■ They're so tiny you need a powerful microscope to see them, but they're a big hit with turfseed buyers.

Virtually all seed producers are accelerating efforts to put endophytes into as many varieties as they can.

The result: even more varieties of endophyte-enhanced turfseed coming to market, which seems to be fine with turfseed end users.

Turfseed-buying professionals have evidently taken to the idea that endophytic fungi—barely known just a decade ago—provide turfgrass with enhanced insect resistance (above-ground insects) and, more recently discovered, disease resistance. Turfgrass experts feel this translates into reduced use of traditional chemical controls, and hardier turfgrass.

"The seed companies aren't driving the end users," says Eric K. Nelson, research director for Medalist America. "The demand is coming from the customers. This is something they want. Its time has come."

Adds Dr. Fred Ledebor of Turf Merchants, Inc., "All new germplasm of tall fescue, perennial ryegrass, and fine fescues that enter our breeding program is screened immediately for endophytes.

"Plants that do not contain endophytes are channelled into a branch of the program to introduce endophytes, while endophyte-infected plants are moved immediately into the breeding program."

Suichang Sun, a researcher who came to Jacklin Seed this past March after six years at Rutgers University, says

endophyte-infected varieties originate from naturally infected plants that were selected from a nursery. Or breeders select good looking plants that are then artificially inoculated.

He says researchers are studying an *Acremonium* endophyte that will be artificially inoculated into fine fescues. But studies at Rutgers have shown an inhibition to *Acremonium* endophyte in Kentucky bluegrass varieties.

To develop a variety of Kentucky bluegrass containing endophytes, researchers will either have to find a type of endophyte that will not be rejected by Kentucky bluegrass, or cross endophyte-infected plants of neighboring *Poa* species with Kentucky bluegrass.

Actually, it's not the endophyte itself that provides insect resistance, it's the alkaloids that the endophyte produces, the reason why endophytes are undesirable in forage grasses.

—Ron Hall

'Topping' trees is a likely mistake

■ Tree "topping" occurs when the crown of a tree is cut. It's not only aesthetically unpleasant, it can cause the tree to become infected or die.

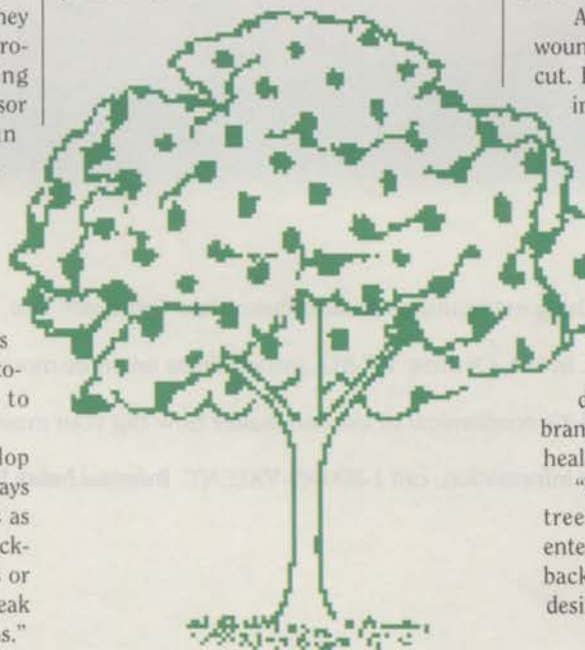
"Many homeowners assume that if they top a large tree, it will compensate by producing a new, healthy, lower-growing crown," says Dr. J. Robert Nuss, professor of ornamental horticulture in Penn State's College of Agricultural Sciences.

According to Nuss, removing the central trunk and the tops of main branches permanently destroys a tree's form and causes unnatural growth.

Removing too many leaves weakens the tree. Without enough leaves to photosynthesize, the tree slowly starves to death.

When trees are topped, they develop bristling "water sprouts," or suckers," says Nuss. "To the untrained eye, this looks as though the tree is rejuvenating, but suckers don't develop into substantial limbs or produce enough leaves. They remain weak and spindly, and snap off easily in storms."

Nuss says a topped tree might develop a double leader, or trunk. This new trunk often is weaker than the original and is prone to



splitting. The massive root system also is weakened because it no longer receives adequate nourishment from the crown. Trees in this condition are more likely to split or blow over in a storm.

"A mature tree with a healthy root system is much less likely to blow over than a weak one with damaged roots," advises Nuss.

A topped tree also causes large wounds where the crown and limbs are cut. It takes years for these to heal, and in the meantime can invite insects, disease and decay.

Before you prune a tree, Nuss says, consider what you want to accomplish.

Consider the tree's natural form, growth habit, growth rate, height and spread.

"Pruning is meant to remove dead, damaged or insect-infested branches and keep the rest of the tree healthy," says Nuss.

"It's also used to open the center of a tree and allow more air and light to enter. All pruning cuts should be made back to side branches pointing in the desired direction."

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GUIDE TO
ORNAMENTALS

- * bed preparation
- * tree planting & care
- * wildflowers in urban areas
- * favorite annuals/perennials

Selection, planting and care of Annuals

Flowering annuals or bedding plants are homeowner favorites. They are inexpensive and produce an abundance of brightly colored flowers from spring to frost. Some are even winter-hardy if protected by a light mulch.

Annuals complete their growing cycle within one growing season. They are usually purchased in early spring and planted as soon as the last frost is past. Several annuals, such as pansy, snapdragon, stocks and calendula, will withstand a light frost and can be planted earlier for establishment during cool weather.

The annuals industry has grown tremendously in the last several years. The impatiens is the most popular since it is so versatile, offering brilliant summer-to-fall bloom in shady beds, borders and containers.

Other leading annuals are geraniums from cuttings and seed, petunia, marigolds and fibrous begonias.

Where they grow—Annuals grow best when the soil in the planting site has been prepared beforehand to receive the transplants. Planting sites should be well-drained and in full sun or moderate shade, depending on plant species preference. Plant roots fail to thrive in wet soil so drainage is very important.

Adjust the soil to a pH of 6.3 to 6.7 for best growth.

Highly organic soils can range from pH 5.7 to 6.0. Amend the soil with high quality peat. At planting, break apart soil root masses slightly to prevent "root balling." This procedure will ensure rapid



Begonias are among the most popular annuals.

root expansion into surrounding soil.

Water plants after planting to hasten root establishment.

Before planting—After healthy plants have been purchased, plant them immediately. Water and fertilize on a regular basis.

Transplants, if held for a few days before planting, must be kept watered, since the small cell-packs dry readily. Place plants under the shade of trees and remove dead flowers as needed to prevent decay if planting is delayed.

Don't store plant material in a shop where gas engines are started. Build-up of ethylene gas, a product of combustion, can cause leaf drop and flower injury. High temperatures and low-light conditions will also lead to rapid deterioration of plants.

As plants grow and flower, it is necessary to pay some attention to small details of fertilization and dead flower removal.

Fertilize at time of planting by using a controlled release fertilizer product that will feed all season or use a liquid with 20-20-20, 23-19-17 or a similar fertilizer bi-weekly.

Remove dead flowers and broken branches weekly. This reduces botrytis fungus build-up and keeps plants healthy. Avoid overhead watering by using a soaker hose to wet the soil and not the foliage.

—Source: Dr. Charles T. Behnke, extension agent, horticulture, Ohio State University

Site selection



Impatiens: for shade or partial shade areas.

Moist locations: Angel trumpet; forget-me-not; hibiscus

Poor soil: California poppy; celosia; clarkia; cosmos; snow-on-the-mountain

Sunny locations: Aster; baby's breath; bachelor button; calendula; castor bean; celosia; celosia; cosmos; dianthus; flowering cabbage; gazania; geranium; larkspur; marigold; morning glory; moss rose; nasturtium; pansy; petunia; poppy; salvia; snapdragon; statice; strawflower; verbena; zinnia.

Shade or partial shade: Annual phlox; balsam; begonia; bellflower; calendula; clarkia; coleus; dwarf lobelia; forget-me-not; four o'clock; flowering tobacco; godetia; impatiens; larkspur; nasturtium; pansy; sweet alyssum; verbena; wallflower; wishbone plant

Arid locations: Ageratum; California poppy; cockscomb; coreopsis; cosmos; four o'clock; moss rose; petunia; statice; swan river daisy; verbena; zinnia.

Petunias: best in arid locales.



Perennial favorites

SPRING

Lungwort (*Pulmonaria* spp.)—Several varieties; oval leaves with metallic spots; flowers that turn from pink to blue; 5 inches tall; excellent ground cover.

Bloodroot (*Sanguinaria canadensis*)—Huge, rounded leaves through spring and summer; daisylike white flowers are 8 inches tall; a native; self-seeds and spreads rapidly.

Ferns—Many varieties, including maidenhair (*Adiantum* spp.), Goldie's (*Dryopteris Goldiana*), royal (*Osmunda regalis*), Christmas (*Polystichum acrostichoides*) and Japanese painted (*Athyrium niponicum* var. *pictum*); 1 to 4 feet tall; lovely foliage plants.

Daylilies (*Hermerocallis* spp.)—Early-blooming varieties 6 inches to 4 feet tall.

Oriental poppies (*Papaver orientale*)—Hairy lobed leaves; huge white, pink, red or orange flowers, 3 feet tall; dies back in summer.

Peonies (*Paeonia* spp.)—Many varieties; deeply lobed, leathery foliage; white to red single and double flowers; 1 foot to 4 feet tall.

Virginia bluebells (*Mertensia virginica*)—Oval leaves die back in summer; flowers start pink and turn blue, on graceful stalks; 1 foot tall.

Common primroses (*Primula vulgaris*)—Crinkled, straplike foliage; pale yellow flowers; 8 inches tall.

Iris Kaempferi and *I. Pseudacorus*—Lance-shaped blue-green leaves; huge flat flowers; three feet tall.

SUMMER

Hostas (*Hosta* spp.)—Many varieties; huge rosettes of oval leaves in many textures and colors, white to lavender bell-like flowers, some fragrant; 6 inches to 4 feet tall.

Daylilies (*Hemerocallis* spp.)—Many varieties; flower colors may be less vivid on shaded plants.

Balloon flowers (*Platycodon grandiflorus*)—Small oval leaves; white, pink or blue single and double flowers on wands; 2 feet to 3 feet tall. Buds look like balloons.

Heliopsis (*Heliopsis* spp.)—Many varieties; nondescript foliage; daisylike yellow to orange flowers; 4 feet tall; among the longest flowering perennials.

Phlox (*Phlox paniculata*)—Nondescript foliage; fragrant white to purple flowers until frost; 3 feet tall; visited by hummingbirds.

Coneflowers (*Rudbeckia* spp.)—Several varieties; nondescript foliage; daisylike pink or white flowers with brown metallic centers; 2 feet to 3 feet tall; a native.

Astilbes (*Astilbe* spp.)—Many varieties; ferny, leathery foliage; flowers in plumes of white, pink, lavender and red; 6 inches to 5 feet tall.

Purple loosestrife (*Lythrum Scalicaria*)—Several varieties; nondescript foliage; wandlike flower clusters in pink to purple; 3 feet to 4 feet tall; invasive.

FALL

Hostas (*Hosta* spp.)—Many varieties; huge rosettes of oval leaves in many textures and colors, white to lavender bell-like flowers, some fragrant; 6 inches to 4 feet tall.

Daylilies (*Hemerocallis* spp.)—Many varieties; flower colors may be less vivid on shaded plants.

Balloon flowers (*Platycodon grandiflorus*)—Small oval leaves; white, pink or blue single and double flowers on wands; 2 feet to 3 feet tall; buds look like balloons.

Blue mist shrub (*Caryopteris x clandonensis*)—Gray-green delicate foliage; blue misty flowers from August on; 3 feet tall.

Asters (*Aster* spp.)—Many varieties; nondescript foliage; daisylike flowers in white, yellow, blue, pink, red and purple; 6 inches to 5 feet tall. Some are natives.

Hardy chrysanthemums (spp.)—Many varieties; much-branched compact plants with daisylike flowers from white to red; 1 foot to 3 feet tall. A good cultivar is *C. x rubellum* 'Clara Curtis'.

Hibiscus (*Hibiscus* spp.)—Several varieties; huge heart-shaped leaves; plate-sized single flowers from white to red; 4 feet to 6 feet tall.

Ferns—Many varieties; attractive foliage; 1 foot to 4 feet tall.

SHADE

SUN

WET SOIL

Perennials are charted in order of flowering or their most attractive season. Chart author Nancy Carney says these species all thrive in crowded gardens. Carney lists plants that are easy to grow and long-blooming, with foliage that stays attractive a long time.

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5 steps to proper garden design

1) Provide a path for the eye. It's "the track the eye rides upon." A path guides the eye through the garden as though the eye were riding on rails. The path must appear to lead somewhere, and the further the better.

2) Build a background, to emphasize the best features of the garden. Fences, walls, shrubs or trees make the best backgrounds; they obscure distracting objects, like telephone poles or tool sheds.

3) Find a focal point. You find it when you follow the path and reach the background. The focal point should be interesting and obvious, such as sculpture, furniture, bird feeders, or a distinctive and colorful plant.

Chrysanthemum variety 'Sophia', new from Yoder Bros., Barberton, Ohio; (216) 745-2143



4) Control color. Divide flowers into two groups: those that are colored red through blue, and those that are yellow through orange. If you plant flowers from only one group, you simplify the color scheme without detracting much from the garden's allure, since the colors in each group generally harmonize.

5) Add texture. Save this for last. Texture includes all the non-flower details: plants, pebbles, rocks, benches, patios. Paving materials should be of the same texture. If the patio's made of brick, so should the wall be brick.

Plants, however, can be of various textures, as long as the most dramatic plants don't overpower the rest of the garden.

—Source: Robert Smaus in *The Best of Fine Gardening: GARDEN DESIGN IDEAS*, published by The Taunton Press (softcover, 96 pages, \$14.95). To order, call The Taunton Press, (800) 888-8286, operator 77.

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Actually, the m this picture is conta

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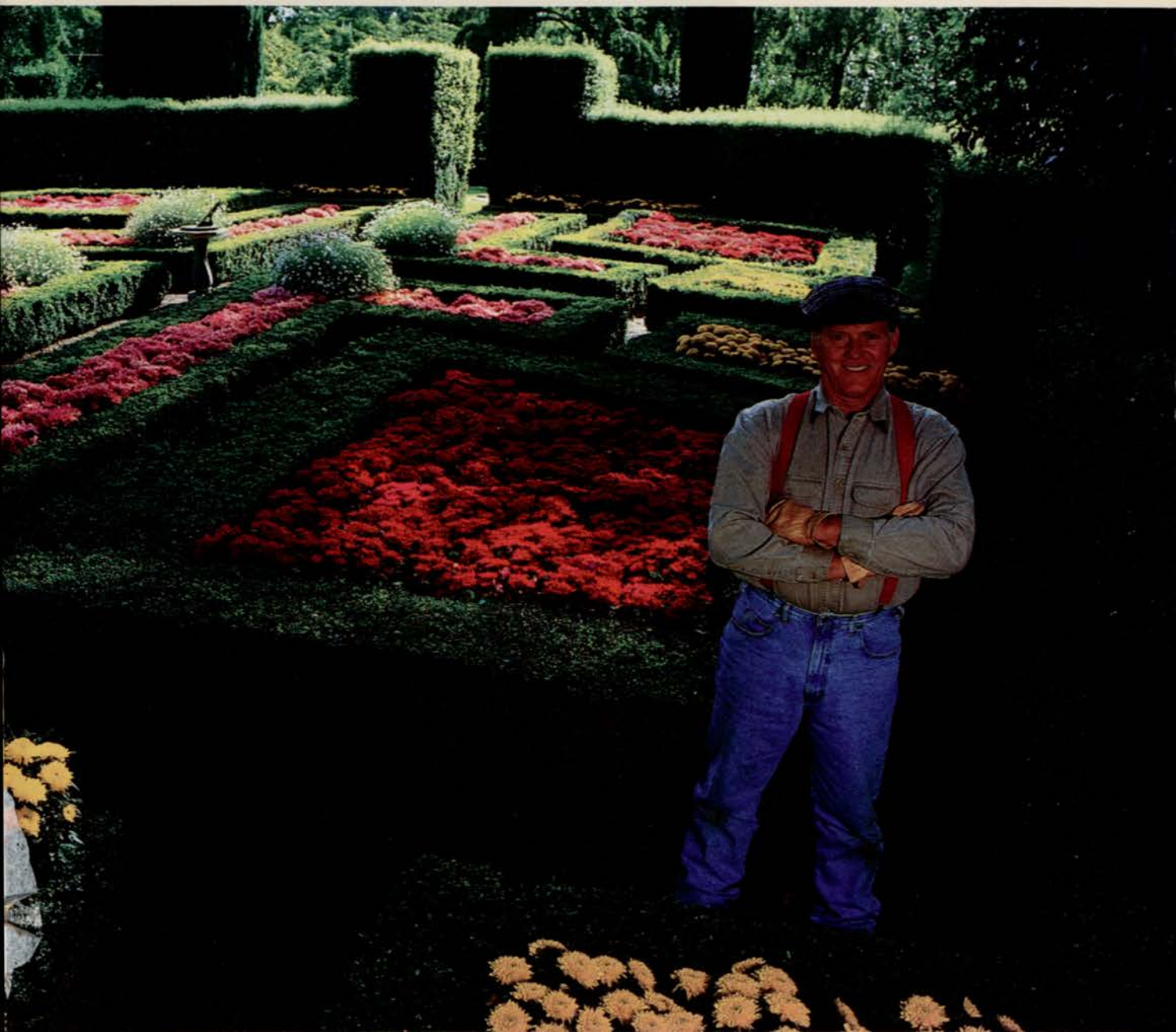
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Wildflowers for the 'burbs?'

■ Wildflowers in residential areas? You bet.

Direct seeding of wildflowers is less expensive than using bedding plants. Wildflowers are hardy and, in many cases, drought tolerant. Wildflowers also offer a casual, natural look—that bit of wilderness so desired by many homeowners today.

Does that mean advising homeowners to turn their properties into a wildflower meadows? Not at all.

Neighbors may not appreciate it. The homeowner may love wildflowers, but neighbors, some anyway, may perceive them as weeds. Also, some communities have laws against allowing lawns to grow too tall. A wildflower area is, admittedly, not a lawn, but these complaints are common enough to be bothersome. Deal with neighbor and local regulatory issues before beginning. Then plan the wildflower areas carefully. Likely residential wildflower sites include a slope in the back of a property or a side yard.

Matching the kind of wildflower mixture with specific site is the next step. How much sun does the area receive? There are wildflowers that grow in sunny, dry areas as well as those which grow in cool, shady spots which get at least one to four hours of sunlight daily. Decide what kind of mixture suits the desires of the homeowner best. All one color? A tall mixture?

A multitude of mixtures are available, even custom blending for larger seeded areas. Most mixtures contain both perennials and annuals. Most annuals will give a brilliant show the first year, but usually don't reseed. They help con-



There are wildflowers that grow in sunny, dry areas as well as those which grow in cool, shady spots which get at least one to four hours of sunlight daily.

trol weeds and add vibrant color to the planting during the first year. Most perennials will bloom from the second year on.

Proper preparation of the planting site is critical for wildflower success. Remove existing vegetation, tilling the soil to a depth of three to four inches. Remove weed seed from the soil, either by repeated tilling or by repeated use of a general herbicide such as Roundup or Kleenup.

Wildflower seeds can be planted in spring, early summer or fall. Typical seeding rates for small areas are one ounce per 250 square feet or one pound to cover 4000 square feet. A one-acre planting will need 5-20 pounds of seed, depending on the site and mixture used.

To make seeding easier, mix the seed with sand or vermiculite. Then spread the mixture by hand or with a small cyclone seeder. The seeds should be covered lightly by raking or by covering with $\frac{1}{2}$ inch of fine peat.

Keep the ground evenly moist until the seedlings become established, usually within 4-6 weeks. This is particularly important if seeds are sown in late spring or early summer. Although it may not be practical to hand-weed large wildflower plantings, it greatly enhances the beauty of the site to remove weeds. Mow, at a height of 4-6 inches, at the end of the growing season.

New hosta cultivars

■ Hostas are one of the best partial sun/full-shade perennials.

"Anything with yellow in it will tolerate more sun," says Debbie Frey, horticulturist with Bailey Nurseries, Inc., St. Paul, Minn. "But as a rule, hostas are suited to part shade or shade."

Light sun for plants means 3 hours or less per day. Full sun is 6-8 hours a day; partial sun is 4-6 hours of direct sunlight.

Frey says there are some new hosta varieties on the market.

"There aren't thousands of cultivars to choose from, but here are some newer varieties on the market to think about."

Here's Frey's list of new hosta choices:

Hosta 'Aspen Gold' is a large specimen plant with gold leaves that are crinkled and cupped.

Hosta 'Francee' is a variegated type with dark forest green leaves

with a bright, crisp white edge. A good choice for potting, it blooms in August with a lavender flower on plants that are 15-to 18 inches tall.

Hosta 'Ginko Craig' is a small-starred plant that's great for edging the garden bed, with long narrow dark green leaves with a narrow white border along the leaf.

Hosta 'Great Expectations' is a large specimen plant; the leaf has a very wide, irregular margin of blue and green surrounding a light yellow-cream center, very puckered.

Hosta 'Patriot' has leaves with forest green centers, accented by a broad, cream colored margin on plants up to 18-inches tall. It likes more sun than the average hosta to retain its color.

Hosta 'Shade Fanfare' is a variegated variety; leaves have a light green to gold center accented by a broad, cream-colored margin on plants up to 18-inches tall. It needs more sun to retain its color.

Bedding plant preparation/fertilization tips

■ Vibrant displays of bedding plants require healthy soil that contain adequate quantities of water, air space and nutrients. Since bedding plants have such small root systems—compared to woody plants—these three requirements must be uniform in the top 8 to 10 inches in the soil.

Unfortunately, not all soils provide good growing conditions for bedding plants. Sub-standard soils can be improved with the addition of soil amendments and nutrients.

For instance, sandy or coarse-textured soils provide pore space for oxygen and drain well. That, of course, means they don't hold water very well. The addition of peat moss, humus, or properly processed compost will allow the soil to hold more water.

Clay soils are comprised of much smaller particles meaning they hold water well. Characteristically these soils compact easily and drain slowly, between 4 to 20 times slower than sandy soils. Additions of pine bark humus or compost (make sure it's fully composted) can improve these soils. For best results incorporate at least 2 inches of the amendment into the top 6 inches of the soil. You can add more amendment, up to about 50 percent. More than that is a waste of time and money.

After adding the amendments a soil test may be in order. It will reveal if phosphorus, potassium, calcium or magnesium are needed.

It will also measure the soil's pH. Or you can make your own preliminary finding with a portable pH meter. The soil pH for bedding plants should be between 5.5-6.5. To raise the pH of the bedding plant soil, use ground limestone; to lower it, elemental sulfur.

Providing bedding plants with the proper nutrients and in the proper amounts isn't just a matter of putting down fertilizer.

For instance, the challenge in applying nitrogen—the element that accelerates plant growth—lies in not applying so much that plants are



Bedding plants provide a more colorful display when properly fertilized.

damaged.

Water-soluble fertilizers, for instance, can generally be applied every 4-8 weeks throughout the plant season, applying no more than 4-6 lbs. N per 1000 sq. ft. of bed area during the growing season. Or, slow-release fertilizer can be incorporated into the bed just before planting. Broadcast a second application about mid-season. Again, 4-6 lbs. of N per 1000 sq. ft. of bed per season should give good results.

Once the bed has been prepared and fertilized and the flowers planted, they must get adequate amounts of water. The nature of the soil, whether it's primarily sand, loam or clay, determines how often the bed should be irrigated. Beds maintained in sandy conditions may need to be watered 2 or 3 times a week whereas a bed that's been established in clay may only need a weekly dosing.



Suggested nitrogen sources, application methods, intervals between applications and application rates for bedding plants in the landscape (Nitrogen recommendations based on seasonal total of 4 lbs. N/1000 sq. ft. bed area)

—by Douglas A. Bailey, Stuart L. Warren, William C. Fonteno, North Carolina State University.

Dry broadcast over bed surface

Weeks between applications, # of apps per season

4 wks.
(5 apps)

6 wks.
(3 apps)

8 wks.
(2 apps)

Liquid 1 quart per sq. ft. of bed area at each application

Weeks between applications, # of apps per season

1 wk.
(18 apps)

2 wks.
(9 apps)

4 wks.
(5 apps)

lbs/1000 sq. ft. for each app.

lbs./100 gallons of solution

Nitrogen source	Effect on soil pH	Dry broadcast over bed surface			Liquid 1 quart per sq. ft. of bed area at each application		
		4 wks. (5 apps)	6 wks. (3 apps)	8 wks. (2 apps)	1 wk. (18 apps)	2 wks. (9 apps)	4 wks. (5 apps)
Ammonium nitrate (33.5-0-0)	mod. acid	2 lbs. 6 oz.	4 lbs.	6 lbs.	4.5 oz.	9 oz.	1 lb.
Ammonium sulfate (20-0-0)	very acid	4 lbs.	6 lbs. 11 oz.	10 lbs.	7 oz.	14 oz.	1 lb. 10 oz.
Calcium nitrate (15.5-0-0)	mod. basic	5 lbs. 3 oz.	8 lb. 10 oz.	12 lbs. 14 oz.	9 oz.	1 lb. 2 oz.	2 lbs. 1 oz.
Potassium nitrate (13-0-44)	slight acid	6 lbs. 2 oz.	10 lbs. 4 oz.	15 lbs. 6 oz.	11 oz.	1 lb. 6 oz.	2 lbs. 7 oz.

New tree planting

Generally, plant trees and shrubs so that they may develop freely without crowding each other, houses or utility lines.

Before selection: determine the mature size of the tree by consulting nursery personnel, catalogs, garden books, or extension publications. Be sure to get the correct information for the specific variety of your tree.

Many shrubs and round-headed trees grow about as wide as they grow tall, so if figures for width are unavailable, estimate from the ultimate height. Ex.: a tree that grows between 10 and 15 feet tall will commonly spread its branches about the same distance, and should be planted about 7-to-8-ft.—or about half its height—away from houses or other structures.

Careful placement can reduce maintenance problems. Place shade trees away from the home or other buildings. Keep in mind that in the years to come, the tree will sometimes lose branches in storms. For this reason, oaks and other strong-wooded shade trees should be placed at least 20 ft. away from buildings and utility lines.

Place soft-wooded trees such as soft maple at an even greater distance. In relation to one another, large shade trees should be placed about 50 ft. from each other for best results.

Medium-sized trees such as red maple or river birch should be spaced about 35 ft. apart. Dogwood, redbud, hawthorn, crab or other small trees may be planted 15-to-20 ft. apart and at least 8 ft. from buildings.

Shrubs, hedges—
Spacing is also a consideration for shrubs and hedges. Shrubs should be spaced about one-half of their ultimate spread from buildings.

Place different varieties of shrubs about one-half the total spread for both plants (ex., an 8-ft. shrub and a 6-ft. shrub should be spaced about 7-ft. apart. Hedges may be spaced closer together to

form a full, dense screen. Low hedge plants (3-to-4 ft. high) should be spaced about 18-inches apart, while tall hedge plants will need to be 3-to-4-ft. apart.

Planting: 8 steps

The best time to plant trees and shrubs is during the dormant season; in fall after leafdrop or early spring before budbreak. Cool weather lets plants establish roots in their new location before spring rains and summer heat stimulate new growth.

However, if the tree has been properly cared for in the nursery or garden center, it's okay to plant throughout the growing season. Proper planting ensures a healthy future for new trees and shrubs.

Proper planting involves an 8-step process:

1) Dig a large planting hole. After locating all utility lines, dig the hole as deep as the root ball and twice as wide.

2) Prune just a little—Check for injury to roots or branches. If any roots are crushed, cut them at a point just in front of the break. On the top, prune only broken branches, making sure to leave the branch collar (swollen area where one branch meets another) intact. Begin corrective pruning after a full season of growth in the new location.

3) Prepare the hole and soil. While some newly transplanted trees may benefit from an application of plant food, it is best not to use fertilizer until the plant is well-established. Good, rich native soil placed in the hole is usually adequate. Never apply high nitrogen fertilizer at planting time; it may burn tender roots.

4) Place the tree at the proper height.

To avoid damage, always lift the tree by the root ball, never by the trunk. Add soil to the hole to raise the tree to its original growing level. (This level is marked by a dark stain on the trunk which indicates the difference between the root and trunk bark.)

5) Fill the hole, gently but firmly. Cut the string and remove whatever burlap you can. If the tree's in a plantable basket,

perforate the sides in four or five places and break off the top rim.

6) Firm the earth around the tree to eliminate air pockets. Settle the soil with water and add soil to the hole until the tree is firmly placed.

Don't use your feet to tamp the ground; it'll cause compaction.

7) Stake the tree if needed. Staking can damage the bark, so avoid it if possible. Use a broad, soft

strapping material such as woven belt fabric or padded wire.

Drive two or three stakes into the ground just outside the perimeter of the planting

hole, an equal distance apart.

For each stake, attach one end of the strapping material to the tree at the lowest practical level to keep it upright; fasten the other end to the stake.

Remove the stakes as soon as the tree is firmly rooted.

8) Mulch with 2-to-4-inches to conserve moisture and protect the newly planted roots from extreme temperatures.

9) Water often. Regular watering helps develop a strong new root system. Water new trees at least once a week if it doesn't rain, more often during hot weather.

—Source: *The International Society of Arboriculture*



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GOLF 'SCAPING

Weather stations:

At the forefront of new golf course technology

■ As the golf course superintendent's job becomes more sophisticated, so does the technology available. An important part of that technology is the weather station, which can be used to control irrigation, predict disease outbreaks, guard against liability issues, and much, much more.

"The temperature dictates everything we do," says Mike Handrich, CGCS, of Racine (Wis.) Country Club. "Our new weather station makes the decision-making process—on a day-to-day basis—a lot easier. And we can get the information at the touch of a button."

Full-function weather stations are now available for as little as \$760 or as much as \$8,000. Most can be hooked up to computers, and feature many of these components:

- a **micrologger**, a mini-computer that can generate hourly, daily, weekly or monthly averages, extremes or totals; the data is stored in 24-hour time blocks and retrieved by authorized users
- a **thermometer** to measure air temperature
- a **barometer** to measure atmospheric pressure
- **relative humidity** sensors
- an **anemometer** to record wind speed and directions
- a **pyronometer** to record solar radiation
- a **rain sensor** or gauge, the most common being tipping buckets or cups
- an **evapotranspiration** gauge that calculates the amount of water lost from the soil to evaporation
- an **atmometer** that measures evaporating capacity of air, most typically an evaporation pan or "Bellani plate"



Workers install the Georgia Turfgrass Foundation Trust's new weather station adjacent to its research green in Duluth. Photo by Doug Moody

- **soil moisture** sensors, metallic probes buried in the soil or tensiometers to measure temperature and/or wetness; some are even equipped with relays to locally control irrigation valves in areas where there might be flooding
- **wind chill** gauges
- stand-alone **lightning detection** systems
- **clocks and alarms** that can be set to activate when given parameters are programmed (e.g. when rainfall for any one month reaches a certain total, or when the

temperature reaches a certain level for so many consecutive days, etc.)

- **telephone modems** to relay data to outlying points

Many states like California, Nebraska and Georgia offer information based on their own weather station readings. These networks were originally formed to provide data to the agricultural community, but more golf superintendents are taking advantage of them.

At the University of Georgia, for instance, Dr. Gerrit Hoogenboom hooked

ELSEWHERE

**Deep-tine aeration
cures turf ills, p. 44**

**Adding practice areas,
driving ranges, p. 46**

up one of 18 weather stations (in its Automated Environmental Monitoring Network) at Atlanta Athletic Club. Another will be installed at the Georgia Turfgrass Foundation Trust's research green in Duluth.

"This is something that golf course superintendents and turf managers have needed for a long time," notes GTFT vice president Mark Esoda of Atlanta Country Club. "This is a specific source of valid weather information that does not come from Hartsfield Airport. We'll (now) have area-specific information available on a daily basis.

Contributors to the GTFT receive the proprietary phone number that links them to the weather station's data.

"We are trying to find answers and develop management strategies for the problems of high heat, high humidity and low air circulation during the summer," notes Esoda. "Every superintendent finds himself faced with problems on bentgrass greens under these conditions, (and) we want to know what practices will avert the problems."

Handrich bought his own weather station earlier this year. He sings its praises.

"It shows members that we're not flying by the seat of our pants," he says. "In this day and age, the members want the course as close to perfect as we can get it, every day."

Handrich says his unit comes in handy when determining daily spray programs.

"First, we're using it for wind speed, to see if we should be spraying at all. We've got sprayers going out nearly every day, so we've got to be on top of the wind speed. Whenever we spray, we log the temperature, wind, humidity, what we're spraying and why. Secondly, having the weather station data helps avoid liability and gives people the idea that we're very conscious of our spraying."

Local and on-site weather stations can also provide a relatively inexpensive way to determine the amount of water to apply, given the conditions. They can also be hooked up to what experts term a "reactive" irrigation system. Using a central control coupled with an on-site weather station and sound irrigation scheduling can save thousands of dollars a year.

Some weather stations can "communicate" (interface) directly with irrigation systems through a microcomputer, which has a software program that is designed to calculate the ET rate from the weather data.

The golf superintendent, experts note, is still an important cog in this chain because he or she is the person who must translate management information into practical daily operation. "On a golf course, the superintendent is the irrigation expert, a walking, talking database," says Rene

Evelyn-Veere of Rain Bird. "The superintendent or landscape manager can modify the weather station data for specific weather conditions. Then, once the turf manager gets 'tuned into' the system, he can slowly, more precisely replace the water."

—Jerry Roche

What's out there?

■ Here are some of the manufacturers who make weather stations, and what their models offer:

Automata: Makes Data-Lynx Agricultural Management System software that can be hooked to Data-Lynx telemetry equipment, including Aqua-Tel soil moisture sensors, Aqua-Tel+S soil salinity sensors and other Automata weather monitoring equipment.

Circle No. 191 on Reader Inquiry Card

C&M Meteorological Supply: Has the ET Gage, an inexpensive device that gives you evapotranspiration rates within 2-3 percent accuracy. Optional equipment will allow you to link to virtually any computer datalogging system for regular reports or graphs.

Circle No. 192 on Reader Inquiry Card

Karsten Turf: Manufacturers the Turf Anser Weather Station, which includes a data collection weather station connected through a Turf CAD computer to your irrigation system. The system can make daily computations of ET rate.

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Rain Bird Golf: Makes the WS-100 Maxi Weather Station, which can be hooked up to its Maxi System V irrigation equipment for "ET-sensitized" scheduling. High-end system includes state-of-the-art weather software that calculates ET values for you.

Circle No. 194 on Reader Inquiry Card

Spectrum Technologies: Makes the Weather Monitor II and Weather Wizard III, a pair of low-cost (less than \$1,000) stations. Main difference is that the Weather Wizard III does not track humidity, dew point or barometric pressure data while the Weather Monitor II does. Weatherlink can be used with Lotus 1-2-3 or Dbase III spreadsheet to build weather history easily.

Circle No. 195 on Reader Inquiry Card

Toro Irrigation: Makes the Network 8000, another high-end irrigation system with weather station. User can choose one of four ET measurement methods (temperature, solar radiation, historical data or CIMIS data) to determine the amount of water needed to replace that lost by ET.

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—J.R.

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Deep-tine aeration solves wetness, compaction woes

It's given credit for helping Midwest courses bounce back from the rains of 1993 and other problems.

■ The rain indeed fell mainly on the Plains last year. It was a record-breaking wet summer in many parts of the Midwest, with some areas experiencing severe flooding. Mother Nature was especially unkind to golf courses in the region, leaving many saturated or under water.

"The amount of turfgrass lost last year due to the weather has been devastating to many Midwest clubs," observes Bryan Wood, owner of Commercial Turf, a contractor and distributor of turf maintenance equipment in Chillicothe, Mo.

Wood visited a dozen courses in Missouri, Iowa, Kansas, Nebraska and Illinois last fall. "Almost every course I visited, or superintendent I spoke to, had problems with wet wilt, algae, pythium root rot and/or brown patch," Wood says. "In addition, at times during the hot, dry days between rains, dry wilt became a factor due to the turf's shallow root systems caused by the wet weather."

Wood observed two other problems surfacing:

1) Open pore spaces in greens soil were reduced to a bare minimum from continuous days of saturation and water coverage, creating an immediate need to re-establish a desirable oxygen level.

2) Because of the large amount of chemicals used to fight disease, some courses developed a toxic chemical hardpan layer three or four inches below the surface, which could have led to compaction.

Wood made recommendations on a case-by-case basis, but in general he combined Verti-Drain deep-tine aeration, which had been successful in treating clay or heavily-compacted soils, and reseeding.

To re-seed more than 1.5 million square feet of turf last year, Wood used the Verti-Seed, a machine designed specially

for minimal turf surface disturbance.

Three other Midwestern clubs faced similar problems: Bob-O-Link Golf Club and North Shore Country Club in the Chicago area, and Oak Hills Country Club in Omaha, Neb.

Bob-O-Link—Even before last year's rainy season, Bob-O-Link had poor drainage. According to assistant superintendent Rick Bowden, poor percolation was caused by severely compacted clay soil.

"By the late 1980s, the turf simply couldn't absorb water effectively," Bowden says. "After a one-half-inch rain, we couldn't use carts for two days.

Five years ago, Bob-O-Link began a deep-tine aeration program, using $\frac{3}{8}$ -by-14-inch solid tines to penetrate to depths up to 12 inches.

"The course is ready for play again within hours, even after a one-inch rain," Bowden reports. "In addition, we find that we're watering less. The water gets deeper into the roots."

North Shore—This state-ranked course, home to the 1983 U.S. Amateur,

had extremely high levels of sodium in its well water. Foliage and trees that were irrigated were being burned up by July. The soil also had a crusty layer of compaction developing under the clay-based, push-up greens.

Six seasons ago, superintendent Dan Dinelli hired an outside contractor to deep-tine aerate the greens, and he's seen steady improvement in them.

"Root growth has been spectacular," Dinelli confirms. "And our aeration equipment is getting easier to use because the ground is more and more receptive."

Dinelli uses $\frac{3}{8}$ -by-12-inch solid tines so play isn't disrupted. He chooses not to fill the resulting holes, believing the turf's roots will breathe better that way.

Oak Hills—When the USGA Greens Section toured the course in 1989, representatives told superintendent Mark Stewart that 16 greens would have to be rebuilt. "The only alternative," Stewart says, "according to the USGA, was deep-tine aeration."

Stewart has been using his Model 105 Verti-Drain twice a year since just after that 1989 inspection. In the spring, it's fitted with $\frac{3}{8}$ -by-12-inch solid tines, in the fall with $\frac{3}{8}$ -by-10-inch hollow-core tines. After each treatment, the greens are top-dressed with sand.

"The last time the USGA visited," Stewart relates, "they pronounced the greens in their best condition ever. Root penetration has increased from three or four inches to as deep as 10 inches."



Bryan Wood of Commercial Turf uses a Verti-Drain deep-tine aerator to relieve compaction, increase percolation rates and introduce much-needed oxygen to the soil. The solid tines reach a foot below the surface.



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Circle No. 126 on Reader Inquiry Card

Practice facilities made perfect

■ If you're looking for a new golf course project for 1995, consider installing a practice area.

A well-designed practice area can increase the traffic to your course, and perhaps give it the edge you need to beat the competition.

Several options are available, according to the American Society of Golf Course Architects:

- stand-alone driving range;
- extra holes;
- training centers that feature driving ranges and putting greens;
- practice bunkers (which would eliminate having to watch out for people chipping onto the regular practice putting green).

Large practice tee areas enable the superintendent and club pro to spread the foot traffic over a larger area.

Teeing areas can be a half acre in surface area.

Target greens at designated distances from the teeing area are more common nowadays, says the ASGCA. These help keep golf balls in the middle of the facility by giving the golfer a target similar to the targets on the course. These greens can be spruced up with mounds or sand bunkers.

Lesson tees are often designed as separate teeing areas at the end of the practice range or at the sides of the teeing area.

If the lesson tees are located at the end of the range, an adequate buffer distance of about 350 yards or more must

be implemented.

Practice greens should be at least 10,000 sq. ft. in area to allow for adequate pin placements.

Revenue from practice areas can then be used to finance improvements or modifications around the rest of the course.

A "learning center" takes the driving range concept a step further, by giving golfers a place to work on a variety of shots.

The Man-O-War Golf Center in Lexington, Ky. has a 30-acre learning center, with a three tiered driving range, chipping area, putting green, realistic target greens and golf-swing video analysis.

Practice facilities often include a separate green to practice chipping and bunker shots.

It would be easy to implement all these improvements would be a breeze if you had a massive budget. But since your budget likely has a limit, start small. Make one improvement one year, and go from there.

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LAWN CARE INDUSTRY

Selling aeration

Marketing aeration as an add-on service is a matter of show and tell. Your customers won't buy what they don't understand.

by Steve and Suz Trusty

■ The mid-summer doldrums strike again. You've been called out to one of the properties under your care to examine turf that's slightly off-color, seems to be thinning, and quickly shows signs of stress in high temperatures.

There's no evidence of insect or disease activity. Earlier soil test results indicated the need for a fairly standard fertility program, which has been followed closely. The crews are mowing properly, and rainfall has been adequate. Then why does the lawn look lethargic?

Core samples provide the answer. Thatch is average, but there are sparse, poorly-developed grass roots clustered near the surface, and a tightly-packed soil profile.

The lawn next door, another property under your care, looks good. A core sample shows its roots to be well developed, deep into the soil.

A look at the maintenance logs show the lethargic lawns haven't been aerated in the past two or three years.

Explain the benefits—The secret to selling aeration is proper client information. Don't assume the benefits of aeration to be common knowledge.

Simply listing aeration with other services you provide is not the answer. To sell aeration, create an understanding of what it is, what it will accomplish and why the customer's lawn needs it.

Use healthier lawns of neighbor clients as an example. If your company is maintaining a high-profile test plot for the Professional Lawn Care Association's Grasscycling campaign, add core aeration to the maintenance program. Develop signs to be posted on-site to explain the procedure and its benefits. If possible, as part of the signage, fill a small,



Make your customers come to expect aeration as a logical part of their lawn care program.

transparent receptacle with a few of the cores removed, so people can visually identify the size and shape.

To sell aeration, create an understanding of what it is, what it will accomplish and why the customer's lawn needs it.

● If your company is selling its services through a booth at a fair or home show, develop a photo board showing a lawn on an aeration program, with before-and-after photos. Show sample cores from an aerated lawn, taken before and some time after the service is performed. This helps customers see the difference in root development and soil density.

● Add a brochure on aeration as a marketing tool. Use color photos and simple, descriptive text to deliver the same message you'd give in person. If possible, feature photos of another client's healthy, aerated lawn.

● Make sure prospective aeration customers know that the lawn will be covered with tiny holes for a couple days.

Include the brochure in the next mailing to your established customer list, or issue a special mailing. Use an introductory letter as well.

Let the neighbors know—Post a sign to let the neighbors know what service is being performed, and why.

● Feature the aeration brochure and a short sales piece offering aeration and related services.

● Prepare crew members to field basic questions of potential customer who may pass by.

● You may want workers to give the curious a brochure, or offer a full explanation and quotes on specific services.

● Include aeration as part of your overseeding program.

● Prepare a simple hand-out sheet to accompany the aeration brochure when "pitching" an overseeding job by mail, or develop a brochure specifically for overseeding that includes the aeration information.

continued on page 50

We're talking about a control program that's very hard on fungus, yet very easy on your turfgrass.

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use less fungicide and still get an excellent level of control.

It starts with cultural practices. Like replanting



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disease-prone areas with resistant cultivars. Careful watering. Providing adequate fertilizer. And removing thatch. They'll make

Just imagine. A a stranglehold on fungus



your turf less susceptible to disease, which means you can use less fungicide to protect it.

Knowing when to use a fungicide is important, too. By



watching for conditions in which turf diseases thrive (weather patterns and soil

Fungus attacks plants from within. The results can be devastating.

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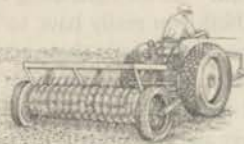
reliable signs), you can put down fungicide with perfect timing, and make fewer applications.

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and infrequently in the early morning (taking steps to keep your turf dry reduces the risk of dollar spot).



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Of course, there's a lot more to fungus control than what fits in this ad. You'll find it in our 44-page book, The Turf Manager's Guide to

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Selling aeration from page 47

Aeration benefits run deep

LCOs, research scientists all agree on its value.

- It opens passageways in the soil, allowing air, water and nutrient movement.
- Water percolation and infiltration are improved. Additional pore spaces "soften" heavy soils. There's more space for root development and deep rooting is encouraged as new growth extends through the core openings.
- Lawn care professionals use core aeration to rescue turf from stress. During drought conditions, core aeration helps water reach thirsty roots. Where rain is heavy, aeration allows air to penetrate and dry up excess moisture.
- Core aeration amends heavy clay soil profiles. Compaction is relieved, nutrient uptake is improved.
- Aeration is "an important turf maintenance tool which helps turf stand up to stress," says Dr. Gil Landry, University of Georgia, and others. Ken Mrock, turf manager for the Chicago Bears, and Jesse Cuevas, of Nebraska's Rosenblatt Stadium, call it "the single most important procedure in the maintenance program."

Curing summer burnout

■ There's no heat quite as intense as a mid-summer Texas scorcher, claims Gary LaScalea, manager of A-Perm-O-Green Lawns, Dallas. Try pushing a spreader and lifting bags of fertilizer during one. "It gets so hot that people start to fall out by the middle of the summer. They can't take it anymore," he says.

That's when a lawn care company should show its employees extra consideration. From a practical standpoint, finding replacements in mid summer is uncertain, resulting in service disruptions as new employees learn

the ropes and gain their licenses. But, LaScalea says, the real reason for giving employees extra appreciation during summer's heat—it's the right thing to do.

"I think you really have to be involved with the employees in these conditions," he says. "You have to show them that you're behind them, that you know how hot it is out there and you appreciate their efforts.

"Maybe you can bring in cold drinks when you know it's going to be hot. Or you can put ice machines in the offices so the guys can fill their coolers in the morning."

Russell Schmidt, owner/operator of Schmidt Landscape, Hillsboro, Mo., says he loses an employee or two each summer. "It's not because they're not quality workers either," says Schmidt. "It's just that it gets so hot their brains get fried."

Russell says he opened an account at a local service

station/convenience store to supply his workers with ice for their coolers. Also, he says his office manager, sensing that employees were wearing down, closed the company over the July 4 weekend and told everyone to take some time off.

"Heat stress is a big issue, and I think we all have to keep educating our employees about heat stress," adds Schmidt. "We definitely have to keep an eye on them in the summer."

Beyond that, supplying employees with hats and the proper summer wear may help. "We're looking at a different company shirt," says Schmidt. "The mowing guys say the shirts they're wearing don't breath as much as they'd like, and I don't allow my guys to take their shirts off at the job site."

But, even with every precaution Schmidt admits, "the temperatures are playing havoc with our work schedules."

Generally, keeping help through summer's dog days seems to be a bigger problem with companies doing more maintenance and mowing rather than applications, several business owners say.

"The help situation hurt us the last two or three years," admits Roy D. Megli, Megli Lawn Care, Sterling, Ill., explaining why he's stepped back some of the landscape services his company previously did.

Joe Burns, Color Burst, Atlanta, Ga., thinks interns from local colleges make good summer employees. "They'll work for you for the time they're there, usually about three months. Then they're gone."

—Ron Hall



Russell Schmidt: advise your employees about heat stress.

HOT TOPICS

Homeowners spend billions, but don't know real benefits

BURLINGTON, Vt.—Seventeen million U.S. households spent \$12.5 billion on professional landscaping and lawn care services in 1993, according to a recent Gallup survey sponsored by three green industry organizations.

But surprisingly, most homeowners do not recognize the real benefits of a well-kept lawn, the survey revealed.

The survey also noted that the number of homeowners using landscape professionals was up 29 percent over 1992, and expected to grow by an additional 6 percent this year.

Results (accurate to $\pm 3\%$) were based on personal interviews with a representative sample of 1,665 U.S. households about their 1993 spending on these services:

1) lawn/landscape maintenance: fertilization, mowing, renovation, insect/weed control, pruning, mulching;

2) landscape installation/construction: plants, walkways, fences, decks, pools, other water features;

3) landscape design: professional design/architecture services.

Average 1993 household spending on landscape services was \$721. Lawn/landscape maintenance received the largest share of total homeowner dollars at \$6.4 billion. Installation/construction was next at \$5.6 billion, then design at \$381 million.

The largest average household expenditures were on installation/construction at \$2,791, followed by maintenance at \$445 and design at \$424.

Other highlights:

● Americans 50 years of age and older accounted for nearly half of all expendi-

1994 U.S. HOMEOWNER LANDSCAPING AND LAWN CARE SURVEY Conducted by The Gallup Organization

Service	1993 Expenditures			
	Households %	(millions)	Avg. \$ Spent	Total \$ Spent (in billions)
Maintenance	15	14.5	\$445.2	\$6.455
Installation/construction	2	1.9	\$2,971.0	\$5.645
Design	1	0.9	\$423.8	\$0.381
TOTAL	18	17.3	\$721.0	\$12.481

Service	1992-4 Expenditures					
	1992		1993		1994 (est.)	
	%	(millions)	%	(millions)	%	(millions)
Maintenance	13	12.1	15	14.5	14	13.2
Installation/construction	1	0.8	2	1.9	4	3.5
Design	0.1	0.5	1	0.9	2	1.6
TOTAL	14.1	13.4	18	17.3	20	18.3

Source: The Gallup Organization

tures on maintenance services.

● The western U.S. had the highest average expenditures on maintenance services, \$536.

● Americans 30-49 years old accounted for 83 percent of installation/construction sales, plus highest average spending in this category, \$3,482.

● Homeowners in the South had the highest average spending on installation/construction: \$6,147.

● Women accounted for 70 percent of spending on design services, twice that of men.

● The mid-Atlantic region accounted for nearly half of all landscape design spending.

Non-recognition—Yet, only 12 percent of American households recognize turf's environmental benefits, the survey noted. Helping purify and cool the air, and filtering groundwater lagged far behind such benefits as beautifying the neighborhood.

"It's surprising to those of us in the turf care profession that the environmental benefits are not recognized more widely," says Lou Weirichs, president of the Professional Lawn Care Association of America (PLCAA). "Our society is the most environmentally conscious in history, yet the public apparently isn't aware that they are doing their part to help the environment just by taking care of their lawns."

continued on page 54

ELSEWHERE

EPA proposes stricter emissions standards, page 54

Turf pros successful at World Cup sites, page 55

VNS seed: a bargain or a threat to quality?, page 56

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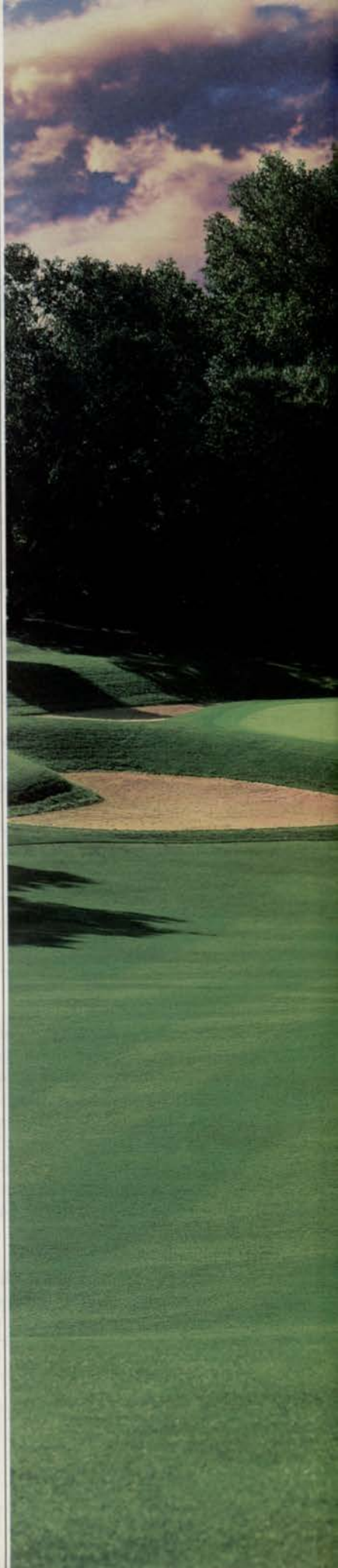
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Not surprisingly, demographic groups that rated lawns most highly include people still in the active workforce, the over-30s, college-educated householders, married couples, those with business or professional occupations, wage earners with annual incomes of more than \$40,000, and people who live outside the central cities.

Besides the PLCAA, other groups that sponsored this first-of-its-kind national survey were: American Association of Nurserymen (AAN), American Society of Landscape Architects (ASLA), Associated Landscape Contractors of America (ALCA), International Society of Arboriculture (ISA) and National Arborist Association (NAA). It was conducted in cooperation with the National Gardening Association.

RECOGNIZED BENEFITS OF A PROPERTY WITH A WELL-MAINTAINED LAWN AND LANDSCAPE

Benefit	% of sample
A property that helps beautify the neighborhood	45.0
A place of beauty and relaxation for the family, employees or visitors	38.6
A property that reflects positively on its owner	38.4
A property that has increased real estate value	35.3
A comfortable place to entertain, work at or visit	32.5
A property that provides a safe, high-quality play area for children	26.7
A place that provides a pet exercise area	12.7
A property that helps to purify the air	12.4
A property that helps to cool the air	12.2
An environmentally friendly property that filters water that drains into the ground	12.1
Other	1.2
None of the above	7.4

(Totals greater than 100% due to multiple responses)

Source: The Gallup Org.

Lawn equipment prices could zoom if EPA finalizes new law

WASHINGTON—Prices of lawn/landscape equipment could jump if the Environmental Protection Agency (EPA) finalizes a draft proposal on new emission controls for two- and four-stroke lawn mowers, chippers, tillers, tractors, leaf blowers, trimmers and edgers.

If adopted, the proposal would establish emission ceilings for hydrocarbons, carbon monoxide and nitrogen oxide. Engine manufacturers would have to get engines certified at those levels by Aug. 1, 1996.

These controls would be just the first of a two-phase control program. Additional, tougher restrictions would be imposed by the agency by the end of the decade.

Industry reaction—Jed Mandel, a spokesman for the Engine Manufacturers Association, says the EPA proposal "is substantially different and significantly more stringent than anticipated."

Don Purcell, president of the Portable Power Equipment Manufacturers Association (PPEMA), says the Phase 1 standards are feasible. But he also says he expects prices to increase, and some models to be taken out of production. And certain parts of the proposal should be changed, he adds.

The EPA promised that its small non-road engine emissions program would resemble the one adopted by the California Air Resources Board (CARB), which goes into effect in 1995.

Once the EPA approves the CARB program, other states will be free to adopt it, instead of following the EPA program. Manufacturers are therefore hoping for the CARB and EPA programs to be similar.

The new proposal, however, contains engine requirements that are not part of the California program. Mandel says that Phase 1 provisions "would be very, very

expensive" for manufacturers, and the costs would be passed along to buyers.

The EPA estimates that the price of lawn mowers would increase about \$5 per unit as a result of Phase 1. Mandel argues that engine manufacturers feel that is too low an estimate.

According to Mandel, the carbon dioxide standard for four-stroke lawn mowers is unachievable.

"At such levels, significant in-use performance problems and customer dissatisfaction occur on certain production-line engines," he says. "Field-testing shows that the lean performance levels cause engines to stumble, die or otherwise be unable to accept their loads." He is pushing for a more relaxed standard.

Needs more time—Mandel says the industry would need at least an additional year beyond 1996 to get all engines certified, because there is no existing technology available to reach Phase 1 standards.

Purcell would also like to see the deadline moved back. PPEMA members realize that the EPA requirements cover the large trimmers and blowers used by the landscape industry, and the CARB standards omit those products.

Companies such as Toro have also had complaints about the EPA proposal. David McIntosh, vice president and general manager of Lawn Boy's consumer division—a Toro subsidiary—says that Lawn Boy's two-stroke lawn mowers might have to be removed from the market if they had to meet Class 3, 4 or 5 emission levels for non-handheld equipment, as proposed by the EPA. Toro wants two-stroke lawn mowers moved up to Class 1 or 2, with the four-stroke lawn mowers.

—Stephen Barlas

GIE show is set through 1999

MARIETTA, Ga.—The Green Industry Expo is "go" through 1999.

The three sponsoring associations of the annual fall trade show for lawn and landscape professionals entered into another shareholder agreement through that year. Lou Wierichs negotiated for the Professional Lawn Care Association of America (PLCAA), Jeff Bourne the Professional Grounds Management Society (PGMS) and Rick Doesburg the

Associated Landscape Contractors of America (ALCA). PLCAA continues as trade show manager.

The 1994 GIE is set for St. Louis, Nov. 14-17. It's held in conjunction with educational conferences sponsored by ALCA, PLCAA and PGMS. For more information contact GIE at 1000 Johnson Ferry Rd., NE, Suite C-135, Marietta, GA, 30068-2112. Phone: (404) 973-2019; fax: (404) 578-6071.

Turf managers help make World Cup soccer story one for the record books

WORLD CUP CITIES—The announcers might still be shouting over the winning scores (Brazil 3, Italy 2 in a finals shootout), but World Cup soccer '94 is one for the books. And although the U.S. soccer team was eliminated along the way, American sports turf managers won considerable accolades for the way they prepared and cared for the playing fields, indoors and out.

In retrospect, the World Cup soccer championships may represent the greatest challenge ever to face American sports turf managers.

"The U.S. may not lead the world when it comes to the game of soccer," says Doug Fender, executive director of the American Sod Producers Association, "but the contribution we can make to excellent playing conditions is unmatched."

Crews worked within tight schedules, on multiple-use fields. Foxboro hosted a "Pink Floyd" concert, Stanford, a graduation ceremony. At both sites, a protective material called Terra-Plas was used to minimize field damage.

Seven of the eight fields were resodded. San Francisco's Stanford Stadium was only partially sodded, but still required covering a portion of the running track with turf.

"We were dealing with an extremely tight schedule," says Neal Beeson, owner of Sports Turf & Facility Management Company, Anaheim, Calif. Beeson's company sodded the Rose Bowl, which required the entire field to be regraded and resodded.

"After removing and hauling away the existing sod, and regrading to bring the field to a consistent one percent grade



A groundsman looks like he's ready to play as his turf teammates re-sod the Rose Bowl in preparation for World Cup soccer.

Photo courtesy Southland Sod Farms

from crown to within 12 feet of the stadium perimeter, we began laying 137,000 square feet of sod on May 1," says Beeson. Games there began on June 3.

The biggest challenge fell to the crew at Michigan State University, where sod grown on plastic sheeting was placed in large, soil-filled, metal modules of varied shapes. (See July, 1993 LM)

All-star turf team—The Sports Turf Managers Association (STMA) organized a special task force to engineer the field logistics.

Don Lockerbie, president of the Olympus Group, was venue coordinator for the STMA's Architectural, Construction and Turf (ACT) Team.

Steve Cockerham of University of California Riverside served as ACT Team agronomic coordinator and manager of field playing conditions testing. Cocker-

ham went so far as to invent a Field Performance Indicator to measure ball bounce, roll distance and deflection, to assure similar conditions at all venues.

Dr. Jim Watson also served as an ACT agronomic coordinator.

Serving as ACT Team turf technicians:

- George Toma, Chicago's Soldier Field, Detroit's Silverdome;
- Chip Toma, Foxboro (Mass.) Stadium, New Jersey Meadowlands;
- Steve Wightman, the Rose Bowl (Pasadena, Calif.);
- Tom Lujan, Stanford University Stadium (San Francisco);
- Don Follet, the Dallas Cotton Bowl, Orlando's Citrus Bowl;
- Tony Burnett, RFK Stadium (Washington, D.C.);
- Eugene Mayer, all practice fields.

This course battles late sleepers in Keizer, Ore.

KEIZER, Ore.—Golf managers at McNary Golf Club here had to battle to get a variance on noise curfews set by city council.

Gregg Smith, a resident whose condo is two blocks from McNary—but right near its maintenance facility—convinced city fathers to outlaw any mowing activities before 7 a.m.

The Keizer police warned the course about violations in April. Not much later, a public hearing was held, at which 200 McNary Development homeowners showed up in support of their course.

"City council decided we could mow our

greens only at 6 a.m.," says golf course superintendent Dave Bashaw. "All other mowing has to wait until 7 a.m."

Interestingly enough, the ordinance outlaws a gang mower hooked to a tractor, but not a fertilizer spreader hooked to the same tractor. Nonetheless, "We haven't pushed things; we want to be a good neighbor," Bashaw contends.

The council legislation also established decibel levels for other golf maintenance tasks, which are measured at the corner of Smith's property.

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Dr. Jim Watson to get 'Old Tom'

■ A giant figure in the history of the golf course and turf industries, Dr. James Watson, will receive the Old Tom Morris Award from the Golf Course Superintendents Association of America.

The award was established in 1982 to acknowledge individuals who have made outstanding lifetime contributions to golf. It will be presented during the closing banquet of the International Golf Course Conference and Show on Feb. 27, 1995 in San Francisco.

"Dr. Jim has been a great friend to the GCSAA and its members for half a century," says GCSAA president Joe Baidy. "His career provides a perfect example of how one person can make a tremendous impact on an entire profession."

Watson studied turf at Penn State under the famed Dr. Burton Musser following military service in World War II.

He went from assistant agronomy professor at Texas A&M in 1952 to direc-

tor of agronomy at The Toro Co. For more than 40 years with Toro, Watson's research touched on nearly every aspect of turfgrass management.

Later, as Toro's agronomist and vice president of customer relations, Dr. Watson helped develop and evaluate equipment and served as liaison to professional turf groups.

He won the USGA Green Section Award in 1976, the American Society of Agronomy's Agronomic Service Award in 1977, the GCSAA's Distinguished Service Award in 1983 and the Golf Course Builders Association's Don Rossi Award earlier this year.

Watson joins other "Old Tom" winners Arnold Palmer, Bob Hope, Gerald Ford, Patty Berg, Robert Trent Jones, Gene Sarazen, Chi-Chi Rodriguez, Sherwood Moore, William Campbell, Tom Watson, Dinah Shore and Byron Nelson.

GREEN INDUSTRY EVENTS

What's going on in the industry

AUGUST

10: New England Sports Turf Managers Association Field Day, College of Holy Cross. Phone: Mary Owen, Univ. of Mass. Coop. Extension, (508) 892-0382.

10-11: Penn State University Turfgrass Field Days, University Park. Phone: Christine King, (914) 355-8010.

16: New York State Turfgrass Association Golf Course Design/Construction Seminar, SUNY Delhi. Phone: NYSTA, (800) 873-8873 or (518) 783-1229.

16-17: California Pesticide Regulations Course, Holiday Inn, Capitol Plaza, Sacramento. Information on new registration and regulations. Phone: Western Ag Chemicals Assn., (916) 568-3660.

17: Massachusetts Assn. of Lawn Care Professionals Golf Classic, Glen Ellen Country Club, Millis, Mass. Phone: Dick Ficco, (508) 238-8550.

24: Michigan Nursery and Landscape Association Summer Field Day, Twixwood Nursery, Berrien Springs, Mich. Phone: MNLA, (517) 487-1282

19-21: TAN-MISSLARK '94 Trade Show & Exhibition, George R. Brown

Center, Houston, Texas. Phone: TAN, (800) 880-0343.

21-23: National Aglime Conference, Radisson Hotel, Keystone Crossing, Indianapolis, Ind. Phone: NSA, (800) 342-1415.

24: University of Rhode Island Turfgrass Field Day, URI turfgrass research farm, Kingston, R.I. Phone: Dr. Noel Jackson, (401) 792-2932; or Bridget Ruemmele, (401) 792-2481.

25: Indiana State Lawn Care Association's Summer Field Day, Oakhill Mansion & Northern Beach Park. Phone: ISLCA, (317) 575-9010.

30: Nebraska Turfgrass Field Day and Equipment show, Mead, Neb. Phone: Dr. Roch Gaussoin, (402) 472-8619.

SEPTEMBER

8-11: Responsible Industry For a Sound Environment (RISE) Annual Meeting, Ritz-Carlton, Naples, Fla. Phone: RISE, (202) 872-3860.

8-9: Southwest Horticultural Trade Show, Phoenix (Ariz.) Civic Plaza. Phone: Arizona Nursery Assn., (602) 966-1610.

INFO CENTER

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GARDEN DESIGN IDEAS...From Taunton Press, compilations of the best articles from its "Fine Gardening" magazine. The "best of" series includes *Great Gardens*; *Garden Design Ideas*; and *Shrubs & Trees*. *Garden Design Ideas* contains 21 articles from past "Fine Gardening" issues. The *Garden Design Series* costs \$14.95. To order, write to P.O. Box 5506, Newtown, CT, 06470-5506.

FOR TREEWORERS ONLY...The National Arborist Association publishes a monthly, six-page newsletter called *The Treeworker*. According to editor Brian Barnard, it is written specifically for field personnel. It contains articles on proper tree care, safety tips, detailed drawings and more. *The Treeworker* is available by subscription only, \$15.95 per subscription for the first nine, less thereafter. To order, send your check to N.A.A., P.O. Box 1094, Amherst, NH 03031.

BUY/SELL TREE EQUIPMENT...Jones Tree Service of Rockford, Ill., has started a network of contacts for persons interested in buying or selling used tree equipment. The monthly newsletter will carry ads at \$25 each, and will reach about 8,000 readers. Subscriptions cost \$30. Contact Larry Jones, (815) 968-9534.

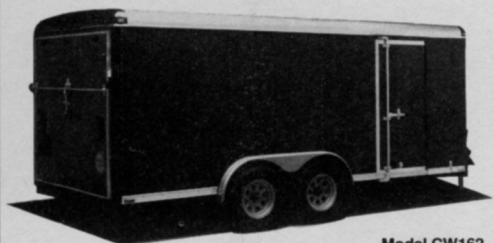
GOLF ENTREPRENEURS...The American Society of Golf Course Architects offers "Golf Course Development Planning Guide," for persons interested in developing a new golf course. The 16 pages include info on the key components of a new project, average cost of a new course, site selection, financing and sample operating projections for a daily fee course. Send a stamped, business-size envelope to: ASGCA, 221 N. LaSalle St., Chicago, IL 60601.

TURF MANAGEMENT GUIDE...The University of Mass. cooperative extension offers the "1994 Professional Turfgrass Management Guide for Massachusetts." It covers turf culture, insect, diseases, nematodes and weed management. To order, send a \$7 check per copy, payable to University of Massachusetts, to: Bulletin Center, Cottage A, Thatcher Way, University of Mass. Amherst, MA 010034.

PRACTICAL MARKETING...The Landscape Horticulture Center for Personnel Development offers the third edition of "Practical Marketing Techniques for the Landscape Company." It is a collection of anecdotes, charts, graphs, examples, case histories and common sense that have proven successful. It sells for \$22.95 plus \$3 shipping and handling. To order, call (800) 359-6647.

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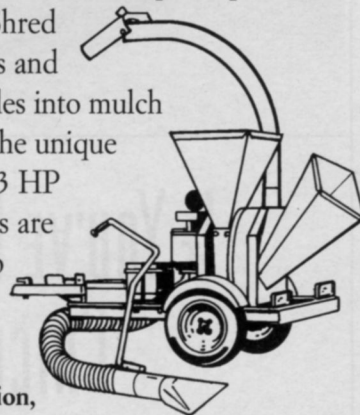
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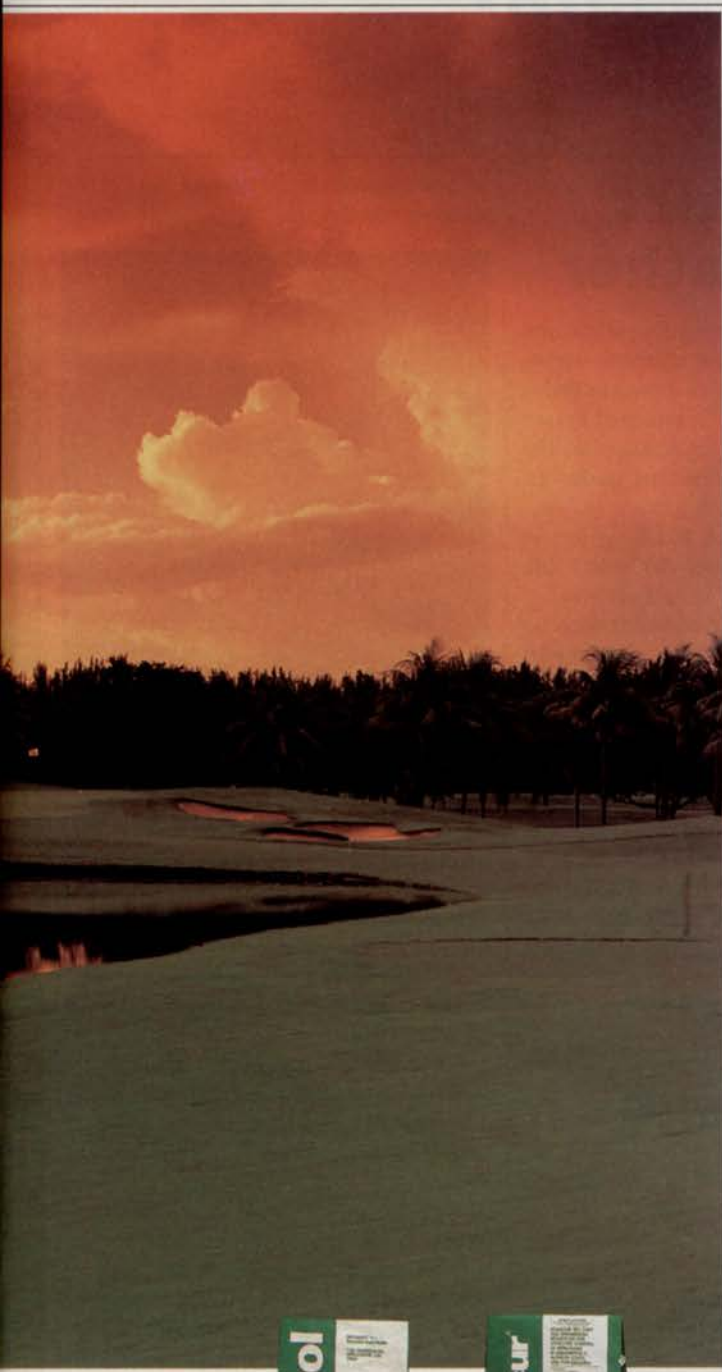


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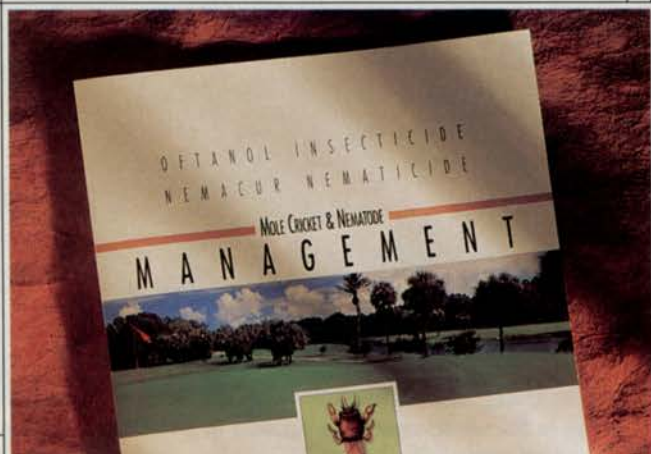
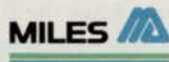
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GREEN INDUSTRY SHOWCASE

Nutsedge control product easy on turf in hot weather

Joe Motz had luck on his side, but chemistry also had something to do with it.

While spraying a Cincinnati Bengals practice field last summer, the crew from Motz Lawn Care and Sports Turf had some overlap in a few spots. But the streaks they expected due to the excess product never showed.

"Backpack spraying is a problem with some products, because you can't control the overspray and you risk brownout," says Lloyd Royse, vice president for lawn care at Motz's company.

Last summer Royse supervised applications of Manage, a new Monsanto herbicide for nutsedge control. He reports that the turf was not harmed.

"The only streaks I saw were streaks of nutsedge where we missed with the sprayer," says Royse.

According to Monsanto, Manage is the

only herbicide that controls yellow and purple nutsedge without injury to warm- or cool-season turfgrasses grown in North America. Registration is expected before the 1995 season. The applications on the Bengals field was conducted under an Experimental Use Permit.

Royse sprayed the field, which is watered once or twice each day, with a rate of Manage equal to two ounces per acre.

"I saw a rapid kill of nutsedge with no turf injury," says Royse. Regrowth occurred a few weeks later, but Royse believes it was from new nutsedge plants.

According to Royse, the Motz crews have applied Manage to more than 80 lawns under an EUP with no resulting damage to the turf.

Randy Ankeny, facilities manager at The Lakes Country Club, Palm Desert, Calif., sprayed lawns and flower beds around condominiums of those residents

he knew would not be present during the summer months.



Joe Motz' crew applied Manage to football field with no streaks.

"We sprayed over annuals, perennials, shrubs and turf," says Ankeny. "The loss of plant life was next to nothing. Vinca and zinnias showed no effect at all."

Circle No. 197 on Reader Inquiry Card

Erosion control protects against West Coast deluge

The devastating fires that swept through parts of Southern California last year were Part I of a natural disaster double whammy. After the fires, came the

rains—and the threat of severe soil erosion.

One erosion control solution was offered by Michael Lansdale, of



Poz-O-Cap, in the white area, was applied to a half-acre hillside in Malibu to prevent soil erosion.

Metamorphosis Hydroseeding, located in La Selva, Calif.

Lansdale's solution was a premium seed mix combined with Poz-O-Cap, a new dust and water erosion control product from Chemical Lime Co., Fort Worth, Texas.

One farsighted homeowner who benefited from the product was Evans Kitsiyannis. One-half acre of his property was seeded with fire retardant plants and covered with Poz-O-Cap at a rate of four tons per acre, twice the normal application rate due to the potential for substantial erosion.

A January dry spell killed much newly-planted seed. Heavy February rains caused massive mud slides in Laguna Beach and threatened the mud-slide prone areas of Malibu.

Neighbors noticed "rilling" on their properties—that is, the formation of tiny rivers in the ground. With continued rain, deep gullies can form and eventually dislodge the land. Kitsiyannis' property was well-protected, and by March, new vegetation covered the hillside.

Poz-O-Cap is formulated from lime, pozzolans (fine siliceous and aluminous

PRODUCT REVIEW

materials) fiber components and other ecologically benign ingredients. It caps the surface, and as it seeps through, binds with and locks on to the substrates, forming a cement-like covering.

"The cap formed on the surface follows the contours of the soil rather than forming a smooth, glass-like surface," says John Reaney, senior business development manager. "This slows the velocity at which heavy rains are shed, lessening erosion potential. On the other hand, the cap also enables treated areas to absorb water when presented in lesser amounts."

"Typical applications of Poz-O-Cap are lasting six to 12 months," says Reaney, who adds that the product is priced comparably with other products.

Poz-O-Cap controls dust and water erosion along road berms and embankments, mine tailings dams, construction sites and coal piles.

Circle No. 198 on Reader Inquiry Card

Build an outdoor water bubbler from components

Most Dependable Fountain Co. of Memphis, Tenn., has a new do-it-yourself kit to build a vandal-resistant, high quality water bubbler.

The customer provides a 10 $\frac{3}{4}$ -inch pedestal pipe, a short length of threaded rod for ground anchor and everyday maintenance tools.

The company's kit includes all stainless steel, external water contact parts including the 18-gauge, polished basin, solid machined bubbler and center drain cover. The fountains are designed with a heavily shielded, actuator button to protect and isolate vital external valve parts from vandal abuse or customer misuse.

The kits cost \$350.

Circle No. 199 on Reader Inquiry Card

Store different fuels safely with dual compartment tank

ConVault's Dual Compartment Tank provides separate and reliable storage of two different fuels in less space than two stand alone tanks.

One seamless concrete vault covers two tanks, each with an overflow/spill containment and emergency vents.

Conveyor belt unloads dry products quickly

The EZ-Pull Pickup Unloader can be used in landscape, nursery, lawn care and golf course applications.

With the EZ-Pull, simply crank the handle at the back of the truck bed to draw cargo towards the tailgate.

The EZ-Pull is delivered fully assembled, and does not require truck bed modifications.

Cost is \$149 for smaller pickups, \$169 for full-sized pickups. The EZ-Pull is made by Yates Industries of San Diego, Calif.



Circle No. 200 on Reader Inquiry Card

As with all ConVault products, the U.L. 2085 listing for insulated tanks is available and the tanks are shipped ready for use as complete fueling and dispensing systems.

ConVault's Dual Compartment tank is a superior design because it provides two distinct tanks. There is no common wall as can be typically found in other tank designs. This is an essential design feature to eliminate the possibility of mixing fuels.

Circle No. 201 on Reader Inquiry Card

Herbicide receives label for warm-season turfgrass

DowElanco has expanded the label on its Confront post-emergence herbicide to include warm-season turf. Confront controls up to 35 species of broadleaf weeds, including narrowleaf plantain, henbit, prostrate spurge and other broadleaves.

University and private cooperator trials confirm that Confront is nearly 100 percent effective against dandelion, clover and plantain, as well as other problem species.

Warm-season turf includes bahiagrass, bermudagrass, centipedegrass and tall fescue.

Confront is a non-phenoxy herbicide.

Circle No. 202 on Reader Inquiry Card

Remove algae and bacteria from water with ozonator

RGF O³ Systems, Inc. markets an ozone generated water purification system.

The PPSO-480 is designed to remove pollutants from lakes and ponds through an oxidation process.

The Super Ozonator destroys waterborne substances such as algae, sulphur dioxide, bacteria, urine, chlorine, odors and various organic chemicals.

Minimal labor is required to install the system, and it comes with a synthetic which resembles a large rock.

The Ozonator is made of welded PVC pip and polyethylene; dimensions are 5 ft. x 6 ft. x 3 ft. The PPSO circulates and ozonates water in lakes and ponds, eliminating stagnant areas.

Circle No. 203 on Reader Inquiry Card

High-pressure spray hose built for rigors of daily use

The JFO Yazoo Professional Spray hose is made from chemically stable, electrical non-conductive synthetic compounds, and reinforced with high tensile yarn. A long service life is one of the benefits from the abrasion-resistant outer covering.

The inner bore is responsible for the high degree of chemical resistance.

A wide range of pest control and lawn care chemicals may be used. The JFO Yazoo hose is very flexible, even in cold weather, kink resistant and of light weight.

The hose has a working pressure of 600 psi. A 4:1 safety ratio allows for pressure surges and operating condition variations.

Circle No. 204 on Reader Inquiry Card

MARKET SHOWCASE

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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

NAME _____
 TITLE _____
 FIRM _____
 ADDRESS _____
 CITY _____
 STATE _____ ZIP _____

TELEPHONE (_____) _____

FAX NUMBER (_____) _____

HAVE A SALES REP CALL ME 18 (A)

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102	119	136	153	170	187	204	221	238	255	272	289	306	323
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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
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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
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 after October 15, 1994

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 (continue receiving)
 LANDSCAPE MANAGEMENT each month: YES NO

Signature: _____ Date: _____

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