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existing associations and societies intact. But their individual powers would be subordinated to a central authority—perhaps an empowered under-director or small council—in the area of governmental regulations.

• Finally, there is the concept of a grand merger: of ALCA, AAN, PLCAA, PGMS—perhaps even the GCSAA—and any other interested associations.

The hang-ups

The last option remains highly unlikely, mainly because the GCSAA is so financially independent that it normally doesn't seek assistance. The powerful Lawrence, Kansas-based organization just recently hired a team of attorneys to serve as Washington lobbyists.

"Our Board of Directors has approved a much more pro-active stance," notes Jones. GCSAA government relations counsel

Cynthia Kelly adds, "But we're looking at cooperating with a lot of different coalitions like the Alliance for Reasonable Regulation. They're a good way to share information, when we have consensus on an issue—on an issue-by-issue basis."

Another factor: not all the above organizations might be interested in supplying their members with a government relations service.

"We're kind of an odd-ball organization," notes John Gillan, executive director of the PGMS. "The members are very fragmented. We have not had the clamor for more voice in government regulations. We do some ancillary things—dip in and out—but it's not high on the board's priority list."

Certainly, the willingness to participate is of utmost importance.

"To make it work, the system has to be right for the [individual association] leader-

ships," ALCA's Atkins is quick to point out.

Bolusky agrees. "When you talk about establishing an 'umbrella' organization, you're talking about the politics of existing organizations and personalities," he notes. "Even so, you've got some consolidation happening now: the AAN is an umbrella agency for the National Landscape Association, the Wholesale Nursery Growers of America and the Garden Centers of America."

"There are things I'd like to be doing more of, so we leave that dialog open," says Atkins. "There's been more cooperation in the last few years among associations. Everyone's very open to new ideas. It's a matter of the timing and the economy."

"The Federation of Green Industry Associations." Sound far off? It probably is. But, depending on how the winds of national politics blow in coming years, it may not be as far off as you think. **LM**

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TRIMMERS: they must 'feel' right

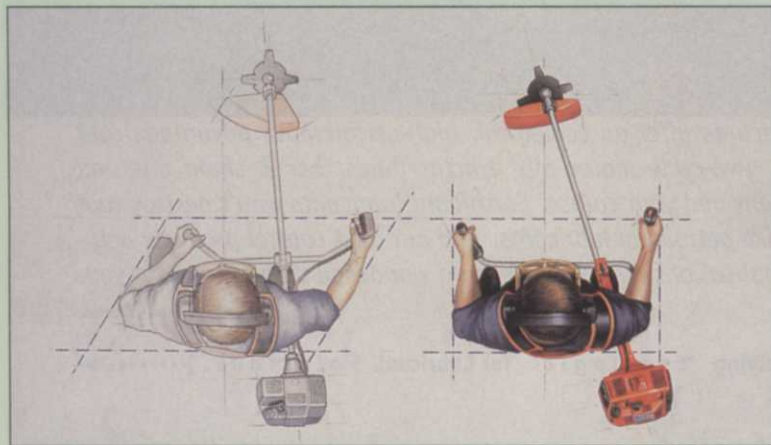
Employers bolster productivity by making employees more comfortable as they work. They also save on workman's compensation claims, training costs and lost work days.

This is called ergonomics, the study of how people interact



PHOTOS COURTESY HUSQVARNA

Trimmer design should allow for ease of movement from side-to-side.



A tool designed with proper ergonomics in mind can be worth extra cost.

with their working environment. Landscape professionals—whether they realize it or not—base decisions on ergonomics.

"Ergonomics means recognizing what mechanical factors contribute to workplace injuries," says Dr. Stephen Dawkins, an ergonomics specialist with Occupational Health International of Atlanta, a company that focuses on work-related injuries. "For a lawn professional these factors involve everything from tool design to vibration in equipment to how tools are used."

Workers who perform repetitive tasks or use vibrating hand tools are at a higher risk of developing problems like carpal tunnel syndrome, a disease that damages the nerves in the wrist.

These "cumulative trauma disorders" now make up almost 70 percent of occupational illnesses, says the Bureau of Labor Statistics. New technology may be responsible for the rapid rise in injury reports.

"Many of the tools that we use allow us to work faster and create an environment where the body is not able to keep up," Dawkins says.

Many contractors already take ergonomics into account when selecting equipment, even if they've never heard the term.

Ray Knoll, landscape maintenance supervisor for Western DuPage Landscaping, Naperville, Ill., says he's willing to pay about \$500 more for a hydrostatic riding mower that won't cause operators to have foot and leg cramps.

Howard Mees, vice president of operations for Environmental Care Inc., Calabasas, Calif., also looks for hydrostatic models with quiet transmissions.

"We don't think of it as ergonomics; we think of it as operator comfort and client friendliness," he says.

If a tool appears to be causing worker discomfort and injuries, Dawkins recommends paying up to 20 percent more for ergonomically designed equipment that reduces these problems.

Dawkins suggests buying pruners, trimmers and edgers that allow operators to work with their hands close to the body, in comfortable positions. Double shoulder straps that are well-padded also increase comfort, adds Mark Michaels, senior forestry product manager for Husqvarna in the United States.

To minimize cumulative trauma disorders for your landscape employees, here's a checklist from the University of Utah Research Foundation:

- ▶ Are reaches as close to the body as possible and always within 18 inches in front of the operator?
- ▶ Are there forceful or quick, sudden motions?
- ▶ Are there sustained static muscle contractions?
- ▶ Are there shocks or rapid build up of forces?
- ▶ Are workers restricted from changing body positions?

Most contractors like to try out equipment before they purchase. They should ask employees to use it also on a trial basis if possible.

Moore Landscapes Inc., Glenview, Ill., started a safety program 10 years ago. Today the 90-person company is reaping the unexpected benefits.

"When you can demonstrate that you care about your workers as well as your clients, that you invest in the best equipment possible, it's a good selling point for doing business with property managers," says Vice President of Maintenance Pedro Berreles. "It works for our customers, too." **LM**

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'Partnerships' could fill funding gap



Terry McIver

TERRY McIVER
Managing Editor

Acquisition and maintenance “partnerships,” in which local sports clubs pool their monies to buy and—in some cases—help maintain athletic fields, could be a way to fill the budget gap in many municipal sports programs.

Bill Whirty of the Fort Collins, Colo., Parks and Recreation Department endorses the idea.

“Many municipalities,” explains Whirty,

“haven’t kept up with the growth, and field shortages are likely.”

Money availability, however, is often at the whims of the voters, who—while they have every right to decide on tax levies—are often unaware of what’s needed to make those fields safe for their children’s sports activities.

Youth sports clubs are not always tied to a city program and need

places to play, but don’t have much land of their own. They look to the city or county for space to play.

The city can’t always afford maintenance, which is where acquisition and maintenance “partnerships” can come to the rescue.

“About four years ago,” says Whirty, “a school district had 10 acres of land it wasn’t using. The Fort Collins youth soccer and youth baseball had some money and went into a cooperative agreement with the city to develop and maintain the fields.” The school district crews handle mowing and irrigation duties, and the Parks and Recreation Department maintains the baseball infields.

Other duties, such as snow removal and weed control, are handled by whichever department has the best equipment or expertise. Tax money allocation is smarter. As Whirty rhetorically asks, “Do [voters] care which department is using the

[GOLF/GROUNDS]

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GCSAA show preview

tax money, as long as the fields are taken care of?”

Education includes explaining just what it takes to grow healthy turf. A local soccer club in the Denver area, for example, thinks 40 hours of play a week is “moderate” use.

“We need to get input from them to know their needs,” explains Whirty, “and educate them so they’re our allies.”

Steve Trusty, new executive director of the Sports Turf Managers Association, agrees that municipal sports face a funding gap. He plans to engage in some helpful public relations during his tenure.

“One of the things we want to do,” says Trusty, “is help educate not only the sports turf managers around the country, but the people they have to depend on for the funds.”

“The school districts are pretty poor right now, and athletic groups don’t care where they’re playing,” says Whirty. “As long as they play.”

Greens renovation: What I learned

by DOUG PETERSAN / Baltimore Country Club

While a superintendent at Baltimore Country Club and Prairie Dunes Country Club (Hutchinson, Kans.) before it, I was involved in two separate renovations. The key lesson I learned was that, before embarking on a renovation program, you must examine and meet several criteria.

Here are the questions you must ask yourself and your board:

1) Are members satisfied with the existing architecture? Are the greens the right size with adequate cupping areas to support play? Are they designed properly?

2) Does the existing subsurface of the green support good healthy turfgrass? If it doesn't, can it be modified so it will support healthy bentgrass? Do the greens drain properly, both on the surface and through their soil profile? If they don't, can they be altered to allow for good surface and subsurface drainage? Are there layers in the soil profile? Are the chemical and fertility levels of the soil proper for the area?

club afford the loss of revenue from greens fees, golf car rental, restaurant sales, and pro shop sales?

When developing your renovation program, a complete cost analysis is required. We had serious revenue losses at all profit centers when we renovated.

At Prairie Dunes, the number one criteria was to not change the contours of any greens because the course was already highly rated.

After deciding to renovate, we triple-cut the greens at 7/100ths of an inch on Labor Day weekend. We aerated in two directions with ½-inch solid tines that went 10 inches into the soil. The greens were then fumigated by an independent contractor and covered. Temperatures for the fumigation were reasonably good.

On the third day after the fumigation, we removed the cover and let the greens air out. Two days later, Pennlinks pre-germinated seed was verti-cut into the green at a rate of ½ lb. per 1000 sq. ft., in two directions. Six-foot collars were seeded with bluegrass.

Greens were then fertilized with a

3) Can the members or players be properly educated about the constraints of the program? Can temporary greens be prepared well enough to provide quality playing conditions? Can the

This green at Baltimore Country Club was expanded considerably. All greens were fumigated.



Milorganite/seed mix, 10 lbs. of Milorganite to 1½ lbs. of seed. Subdue granular fungicide was applied, and the greens were raked.

We got good germination the third day, and the greens opened up the following April 30th.

Total cost was \$30,000 plus loss of revenue.

At Baltimore Country Club, we changed the green perimeters but not the contours and re-established the original edges of the greens, expanding them from 100,000 sq. ft. to 130,000 sq. ft. The greens also had organic layers that needed to be addressed.

Stan Zontek of the USGA Green Section and Dr. Joe Duich of Tee-2-Green were involved with establishing the Pennlinks bentgrass.

The sod on the greens and the collars was stripped on Labor Day. We topdressed with sand (about 12 yards per green) before aerating so we could drag the sand into the aeration holes. We then deep-time aerated twice, using ¾-inch solid tines, followed by another deep-tine aeration with ½-inch tines spaced at two inches.

The top three inches of soil were heavily cultivated and mixed, with Aeroblades, and new irrigation pipe was installed by an irrigation contractor.

Finally, the greens were fumigated.

When the fumigation was complete, we let the greens air out for two days and tested our new irrigation heads. The greens were raked, Sand-Pro'd and rolled with a smooth roller.

Pre-germinated seed, mixed with Milorganite and Subdue fungicide, was put down in one application.

When established, first mow was at 45/1000ths of an inch.

Temporary greens were not necessary because Baltimore Country Club is a 36-hole facility, and we routed all golfers to the other 18.

Estimated cost was \$120,000.

I feel that a renovation or fumigation and regrassing program can be a good program for clubs if the above criteria are addressed and met. One cautionary note: don't let anybody—including your board—talk you into opening too soon in the spring. If any of the above criteria cannot

be met, a renovation program could be an absolute failure. □

—Doug Petersan is superintendent at Baltimore Country Club in Timonium, Md., and a member of the Golf Course Superintendents Association of America. He can be reached at (410) 252-9191.

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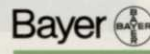
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When this tree failed, it took out power and telephone lines, and blocked traffic on a busy secondary road in suburban Cleveland.

Develop a tree failure reduction policy

by RON HALL / Senior Editor

You as a grounds manager or golf course superintendent spend most of your time caring for turfgrass, but don't ignore what's hanging over your head and the heads of others who use the properties you manage—trees.

Your responsibility, to one degree or another, includes trees, particularly from a safety standpoint.

You can meet this responsibility by developing a "Tree Failure Reduction Policy," says Dr. Thomas Smiley, a plant pathologist and soil scientist for the Bartlett Tree Research Labs, Charlotte, N.C.

"It (the policy) can protect people using your properties, and it can protect you," says Smiley. Also, it helps reduce the "politics" that too often muddy tree management decisions.

To be effective, the policy must be written out and include the signature of your superior. The remainder of your grounds crew must also be aware of it, says Smiley.

Broadly, the policy should:

1) Define what you consider to be a hazardous tree. (Books are available from the International Society of Arboriculture, P.O. Box GG, Savoy, IL 61874-9902; 217-355-9411.)

2) Set tree inspection intervals. Once a year? Twice a year? After major storms? Different managers have different intervals, says Smiley, and most schedules are acceptable as long as they're reasonable.

3) Prescribe corrective measures, but then make sure they're done "according to standards."

4) Assign one person who will make tree decisions.

5) Keep records of completed inspections and of all remedial work.

Act quickly

While there's no way to completely eliminate the risk of tree failure, says Smiley, you should be aware of, and act on, conditions that can lead to failures.

Also, be aware that a tree doesn't have to be structurally unsound to present a hazard. Perfectly healthy trees in the wrong locations can be just as hazardous.

For instance, how about the lightning danger presented by trees in your park or on your golf course? Or the tree that is obstructing the view at an intersection or of a road sign? Or that dead tree you've allowed to remain standing near a fairway or beside a parking lot because it provides habitat for wildlife?

Because most of you are managing properties that contain mature trees, and you're concerned with the safety of the people using your properties as well as limiting your liability, you should acquaint yourself with, at least, the basics of tree risk analysis, believes Smiley.

And, while some risks, like hanging dead branches and split crotches, are visible, others aren't. It often takes an experienced arborist to determine the amount of decay *within* a tree, and whether that decay warrants remedial action. This includes decay and other problems in tree roots. One U.S. Forest Service study suggests that up to 75 percent of tree failures in conifers and about 50 percent of failures in hardwoods are due to root problems.

"We've got a lot farther to go with predicting root failure. We're pretty good with above ground, but when it gets below ground, failures are harder to predict," says Smiley.

He presented these observations at the Institute of Parks and Grounds Management Conference in Toledo, Ohio, this past November. □

Delegation as a handy 'tool'

The modern golf course superintendent's job often includes multiple tasks which have nothing to do with growing healthy turf.

"As we concentrate on those other things—environmental issues, safety issues, pesticide issues, personnel—we find that we spend less time on the art of greenkeeping," says David S. Downing II, CGCS, director of golf course operations for Wild Wing Plantation, Myrtle Beach, S.C.

"I think we need to develop a better balance, because the bottom line is: golfers still play the game on the grass," says Downing, who has become very good at balancing duties. He was the first employee hired at Wild Wing, during the rough-in stage of the first course. Nearly six years later, all four courses at the thousand-acre site are complete. Downing manages 94 employees.

"With a complex of this size," explains Downing, "we set the quality standards, the guidelines of how often, when and how we want things done. Then we rely on the superintendents and assistants to make it happen."

Each golf course is operated as an individual entity rather than a zone. Each superintendent or assistant has a work crew, and daily reports are made for each course.

Constant play

Wild Wing hosts 100 to 150 players per day in the slow months, and 175 to 200 in March, April and October—per course!

"Because we strive to produce conditions at least equal to a premium country club, it's a balancing act to reach the neces-

sary level of efficiency while keeping the player's experience the top priority.

"I'm proud of the course, especially the greens, with the amount of rounds we do," says Downing, who credits the superintendents, assistant supers and crews.

New technology

Downing watches for new technology



David Downing hopes employee safety training pays off in employee commitment and loyalty.

and tools for the superintendent, including turfseed and control products.

"We've started innerseeding A-1 perennial ryegrass into the greens. We use plant growth regulators (PGRs), not just on the roughs, but to control growth on the bermudagrass fairways and tee boxes during the rainy season, when mowing time can be limited. Because we oversee with perennial ryegrass early in the season to keep a constant green, we also use PGRs to hold the bermudagrass in check and give the rye a competitive advantage."

Loyalty and retention

Wild Wing offers a competitive employee package, also explores ways to fur-

ther strengthen employee retention.

"Last summer alone," recounts Downing, "nearly 5000 jobs opened up. Fifteen golf courses have been built in the last two years. Sixty percent of our crew has become pretty stable, but that still gives us a 40 percent turnover."

"Training is a plus in retaining employees. We emphasize that we're training them for their benefit—to ensure their safety, to improve their skills, and to make their work day flow more smoothly. Because we're doing all this for them, we expect a good job and some commitment in return."

The club's groundwater table varies between two and five feet below the surface. "It gave us great flexibility on lake construction during the building process. The holes dug for the lakes filled up gradually, but naturally. The soil that was removed was then used for the fairways, greens and mounds. Wetlands are prevalent here and we've dealt with many of those issues during construction. The courses are built with the holes primarily parallel to the wetlands areas to reduce the impacts."

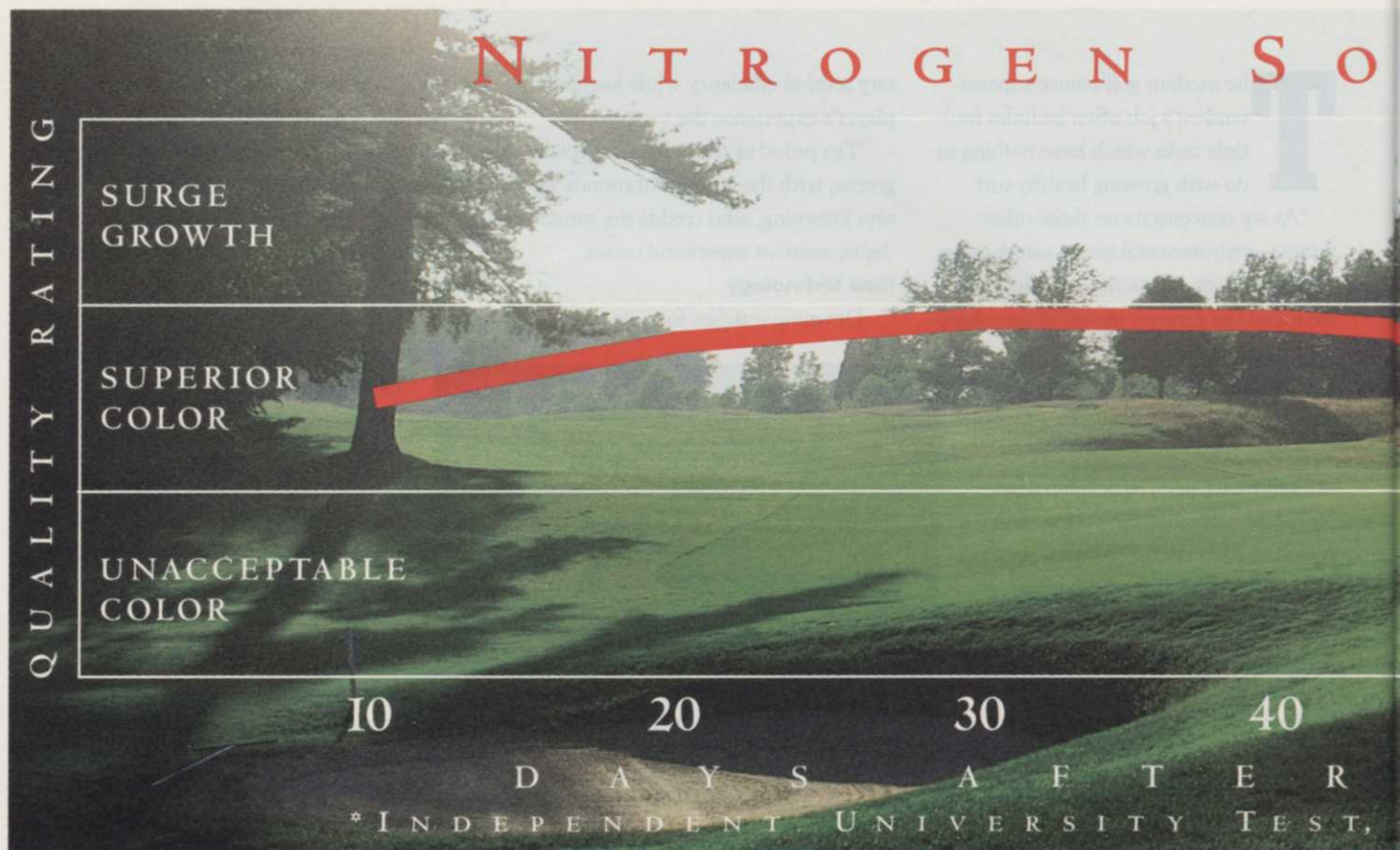
Downing says the construction style makes for less efficient use of the land, but was in the guidelines set by the local Coastal Council and Corp of Engineers.

"Now that building is completed," says Downing, "we basically concentrate on proper maintenance of the wetlands areas and avoiding doing anything that might disturb them."

The 9th Annual John Deere Team Championship Golf Tournament was held at the course in October 1995, which motivated Downing and his crews to crank up the turf management a notch. Many of his superintendent associates played in the tournament, which Downing considers to be one of golf's big events. □

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New drains, modified bunkers improve 'wetlands' course

by LESLEE JAQUETTE

Sometimes, rebuilding is the only way to solve weather-related problems—such as slow drainage and interrupted mowing schedules. Certainly, the weather keeps Jerry Mathews and assistant Jim Smith busy as they

dodge the rain drops at Port Ludlow Golf Course.

The geography and cool, moist climate of the upper Northwest can make turf soggy in fall and winter. Autumn rain, often for days at a time, soaks the low-lying ground at Port Ludlow. More than 20 acres of it is wetlands.

Three years ago, 60 slow-draining bunkers at Port Ludlow were successfully rebuilt as a way to save on maintenance and improve playability and aesthetics.

"They were originally filled with finer, white sand, and a lot [of the poor drainage] was caused by the severity of the slopes," says Smith. "Water would wash sand to the middle of the bunkers."

Bunker slopes were modified, and the bunkers were filled with a coarser, heavier, tan-colored sand.

Over the winter, the crew installed an additional 100 drains to improve water flow from the slowest-draining areas into local creeks and holding ponds. Mathews and Smith use a combination of "French" drains—which are basically large holes dug without tile and backfilled with rock—and tile drains to divert water in low-lying areas.

"From an economic standpoint, the drains are essential," says Smith. "It's important to getting people out to play golf year-round."

To further improve fairway drainage and playability, a new topdressing program was begun. Fairways are now topdressed twice a year with a very coarse grade of sand.

"It really helped out in the spring," says Smith. "It firms up the fairways. We're going to implement more topdressing." Continued shatter-core and hollow-tine aerification also help out.

Hurry up and mow

Mowing—which, for any golf course, is the most often-performed task—must be done quickly and efficiently during breaks in the stormy weather.

Toro 216 lightweight, triplex mowers are used on the Port Ludlow fairways to avoid tire damage to wet turf.



Rainfall from adjacent hills flows onto this fairway regularly, making proper drainage a necessity.

PHOTOS BY THE AUTHOR



Equipment manager Dave Baber, left, and landscape manager Jim Stenger check the progress of wildflowers.

"We check the weather forecasts day by day," says Smith. "If five days of dry weather are in the forecast, we'll get out there to mow as soon as the ground is dry."

The turf goes semi-dormant in fall, which helps reduce mowing frequency. In early November, mowing is cut back to once a week. By December, mowing is needed only every two weeks.

Port Ludlow fairways are kept at a half-inch in summer, and raised to $\frac{3}{4}$ -inch during fall and winter.

Greens are mowed at $\frac{1}{8}$ -inch in summer, and .150-inch in fall.

The expansive, rolling contours of Port Ludlow are an added challenge to the mowing crews. Some of the 60 bunkers have dips so deep they have to be groomed with fly mowers.

Saving money, pleasing golfers

Three acres of out-of-play area have been converted to wildflowers, which equipment manager Dave Baber says has

reduced labor by about 200 hours. About three more acres of wildflowers are to be sown among overgrown ryegrass in out-of-play areas, and along paths between greens and tees.

In addition to the wildflower mix, Stenger's crew of four plants about 24 varieties of annuals—for a total of 6,000 plants—during a "crash" spring planting program.

"We're a resort golf course, explains Smith, "and the price [to play] goes up May 1. So we want all the plants in the ground by that time. It's a two- or three-man operation."

Rhododendrons are a popular choice for shrubbery around the course. Stenger adds up to 100 rhododendrons each year, and feeds them four times annually.

'Liquid sod'

Baber makes good use of soil cores. He combines the plugs with seed and sand to make what he calls a 'liquid sod' mixture, similar to that which you might see on a tee for divot repairs. He says the mix helps the seed germinate quickly, and is used for quick fixes around the course, such as along cart paths or deep tire marks.

The soil-sand-seed ratio is 5:1:2.

"If you've got the right temperature," says Smith, "you can even grow [turf] nurseries with it."

Let the poa grow

Poa annua (annual bluegrass) thrives on the course thanks to the cool, moist climate. Greens are 70 percent poa, but Mathews and Smith make it work.

"You don't try to get rid of *Poa annua*," advises Smith. "You can have quality turf with poa if you maintain it. It doesn't like 80-90 degree weather, and can take up nutrients at air temperatures 10 degrees cooler than bentgrass can. So even into the winter months, the poa turf is healthier." □

Greens and fairways alike respond well to 'spoon-feeding'

The IPM plan followed at Port Ludlow includes weekly documentation of disease flare-ups. Assistant superintendent Jim Smith says he can pursue a curative plan of attack and plan fertilizer and pesticide applications as needed.

"A bonus of the IPM-documented program is that we can evaluate and then react," says Smith.

Last summer he and superintendent Jerry Mathews tried biostimulants from the Floratine Co. (Collierville, Tenn.) to promote root growth: 0.2 lb. were applied to each green in two-week intervals; 3 to 4 lbs. are applied to fairways four times a year.

Lately, the nutrient program for Port Ludlow's greens has been based on Floratine's liquid fertilizers: "Tiger Turf" 4-4-16; "Tournament Pride" 18-3-3; and "Starter Turf" 6-12-4.

"We go low-volume: 0.89 oz. per 1000 sq. ft.," explains Smith. "The lower the volume, the better."

Floratine's "Astron" is used every two weeks at 2 oz./1000 sq. ft. to further promote turf health and stress resistance.

A micro-nutrient called "Renaissance" is used once a month.

Tees are fed with granular products. □

THE GRUB.



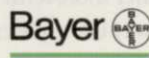
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Circle No. 131 on Reader Inquiry Card

Last-ditch rescue tips for ailing greens

A USGA Green Section official reveals simple strategies for helping heat/humidity-stressed greens stay alive.

Several weeks of unrelenting heat and humidity took their toll on greens in the northeast last summer. The once-in-10-year conditions didn't damage all greens, nor even a majority. A declining green or two on a course was not an unusual sight, though.

Some superintendents lost jobs because of it.

"When one or two greens die, the membership wonders what did you do to these and not the others," said Robert C. Vavrek, Jr., USGA Green Section. "It was hard to explain."

A variety of conditions predispose a green for failure under unrelenting heat and humidity, Vavrek told about 300 superintendents at the 1994 North Central Turf Conference near Chicago.

The location of a green, shielded either by a hillside or surrounded by trees, may put it in jeopardy. Air movement is limited. Disease pressure increases.

Also, layering—either through improper construction or maintenance—is not such an uncommon problem. Cores taken from a suffering green will reveal this.

"There's a layer somewhere and the water is not moving through the soil profile," Vavrek said.

In talking to superintendents who kept their greens playable—and membership relatively satisfied—Vavrek offered these pointers for rescuing greens during periods of unusual heat and humidity stress:

- Fans on the green, or removing several trees can offer short-term help.
- Put away the triplex mower and use a

walking mower.

"You see it time and time again, golf courses spending money on fungicides and hiring an extra person, but they won't buy one or two walkers to have on hand for an emergency," said Vavrek.

- Turn off the automatic irrigation sys-

tem. Keep the green on the dry side. Hand water as much as possible. Quoting from a 50-year-old brochure from the Canadian Golf Course Association, Vavrek said: "More grass is killed by overwatering than by underwatering."

- Aerify, spike or use the Hydroject. "If I had one (Hydroject), I would be using it a lot," he commented, perhaps even on a 7- to 10-day schedule on a heat/humidity-stressed green.

- Consider "a very, very low rate" of nitrogen—perhaps an organic source—and phosphorus from a spray tank.

Successive applications of fungicides and fertilizer is unwise, said Vavrek. "Keep it simple." □

Spoon-feeding, higher cuts save the day in Washington, D.C.

Steve Hilbun's tenure as superintendent for the East Potomac Golf Course began in June, and the summer heat made his employment a certain baptism under fire.

Hand-syringing was one remedy against turf wilt. The bad news was that greens monitoring became a 12-hour-a-day job.

"You'd get here around 4:30 a.m., be here till 7 or 7:30 p.m., for one to three days a week," says Hilbun.

"I would not rely on the automatic irrigation system alone," says Hilbun, who knew the importance of in-person monitoring.

"I would use it for 10 minutes early in the morning, depending on the temperature. There was also some evening watering, for about 10 minutes at 8 or 9 p.m. And we watched for any fungus that may have been activated by water being on the greens overnight."

Hilbun also relied on organic fertilizers—usually in half-pound applications—

during the heatwave, and Aqua-Gro wetting agent tablets.

Milorganite (6-2-0 analysis) and another 22-00-16 fertilizer were applied.

Hilbun tried the Peters 20-20-20, water-soluble nitrogen solution at a rate of 1/10 lb./1000 sq. ft.

Hilbun raised the mowing height on his Toro triplex units to 7/32-inch, from the usual 3/16 height, with—thankfully—no complaints from golfers.

When all was said and done, greens damage at East Potomac was minimal, with only a trace of brown patch and some anthracnose toward the end of the summer. There was no pythium damage, and dollar spot was held in check.

"We'd get some hot spots, but we did not lose any greens," reports Hilbun.

Hilbun is considering the use of wetting agents more in 1996.

The East Potomac course is a 36-hole layout: one 18-hole course and two nine-hole links. □

Nitrogen, growth regulators for quality Florida courses

Bermuda greens need to be well-fed," says USGA consulting agronomist John Foy, who advises superintendents in southern climates to follow at least the minimum fertility requirements for that favorite warm-season grass.

"The old rule of thumb, a pound of actual nitrogen per 1000 sq. ft. per growing month," is essential, advises Foy.

"New, high-sand rootzone greens will probably need more, but once they mature, a pound a month is reasonable. The USGA's environmental research has proven that when nitrogen is applied frequently, in lighter rates, the potential for nitrate leaching is greatly reduced."

Foy believes strongly in the value of potassium for bermudagrass greens.

"Dr. (Jerry) Sartain's work was recently published, and he's pretty adamant about a 1:1 ratio," says Foy. "I'm very adamant about at least 1:1, and in the field I see much better results with something closer to a 1:2 annual potassium fertilization program."

According to Foy, the higher potassium range results in better root growth, better general stress tolerance, heat, cold, wear, and drought tolerance.

Fairway upkeep keeps up

"Golfers not only want better greens, they also want perfect fairways," says Foy. Thankfully, equipment can help you approach perfection.

"If you had all the money in the world to be used on equipment," says Foy, "the ideal program would be to use a lightweight mower in the winter time and bring back the seven-gangs in the summertime. The lightweight mowers have great flexibility in mowing patterns, and you can do more cross-cutting and circle cutting. Gen-

erally, they have a better quality of cut, because they're hydraulically operated reels."

Foy says the drawback to using lightweight mowers on bermudagrass fairways is, ironically, their light weight.

"You need a little more weight and power to get through the bermudagrass," advises Foy, who adds that there are several good mid-weight mowers on the market.

"Ideally, you need one unit per nine holes to keep up, especially in the summertime.

Contracting verticutting

A maintenance crew can only do so much in a day. When it comes to the occasional tasks which may require leasing equipment and a significant time commitment, Foy suggests you consider subcontracting.

"A lot of people contract verticutting out, which I think is a reasonable operation," suggests Foy. "It's a once- or twice-a-year process; it's reasonable to let someone else do it for you.

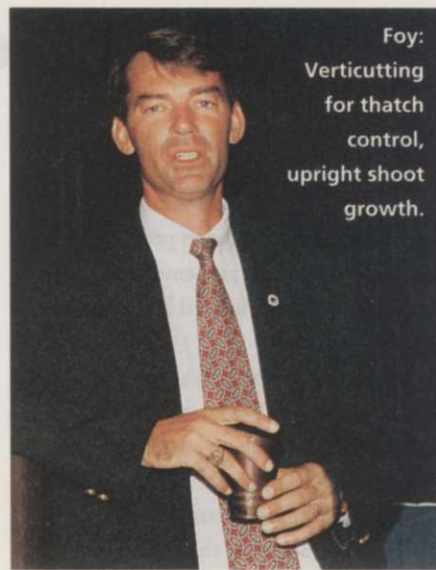
"Verticutting is an aid to thatch control," says Foy, "and a grooming aid for upright shoot growth and a good playing surface."

Foy advises lighter, more frequent verticutting—as many as three or four times during the summer growing season as opposed to once or twice—as a way to better turfgrass vigor and as a way to reduce thatch disposal problems.

Core aerifiers, topdressing

Foy says deep-tine fairway aerification of six inches is more popular nowadays as well as—providing budgets permit—topdressing fairways for thatch control.

Topdressing results in improved soil conditions and a smoother, firmer playing surface, explains Foy, who proposes top-



Foy:
Verticutting
for thatch
control,
upright shoot
growth.

dressing approaches as an added advantage to golfers whose games consist of many bump-and-run green shots.

Regulators reduce mowing

Foy is a strong supporter of growth regulators for use on golf course fairways as a way to reduce mowing frequency and bring about a "tighter" turf surface.

"A three-day mowing schedule can be cut back to one or two days per week with comparable quality," suggests Foy.

Some courses have found they can at least break even with labor costs.

Acceptable levels

"Use pesticides wisely," is Foy's key point when it comes to using control products.

"The USGA spent more than \$3 million over the last three years trying to access environmental impact of pesticides and fertilizer use," reports Foy. "When the materials are used properly, there is little or minimal impact. But, you've got to do it right. We'll never get away from [pest problems], so we've got to establish and maintain acceptable levels of pests.

"It is economically and environmentally impossible to eradicate any of these pests."

Foy spoke at the Florida Turfgrass Association trade show in Tampa in September. □

GCSAA plans debate, better hours for Orlando conference next month

The Golf Course Superintendents Association of America's 1996 conference and show, Feb. 5-11, will feature what promises to be a lively debate on golf and environmental quality, hosted by Harvard law professor Arthur Miller.

Miller, legal editor of ABC-TV's "Good Morning America," is known for his skill in guiding lively debate on current and controversial issues by presenting scenarios designed to stimulate discussion.

Panel members for the debate are Tim Hiers, CGCS, Collier's Reserve Country Club in Naples, Fla.; Bill Shirk, CGCS, Queenstown Harbor Golf Links in Grasonville, Md.; and golf course designer Dr. Michael Hurdzan of Hurdzan Golf Course

Design in Columbus, Ohio.

The evening will include the presentation of the GCSAA Environmental Steward Award, and the announcement of the association's new environmental programs and initiatives.

Better hours

The association reports that the show schedule has been improved, with better show hours and repeat seminars on popular topics.

The board of directors of GCSAA has offered a new format that will run from Monday to Sunday, instead of Monday to Monday.

According to GCSAA, most registrants leave on Sunday and miss the final day of the trade show, annual meeting, USGA

Green Section session and the banquet and show.

The expected 20,000 attendees at this year's GCSAA show will see many new exhibitors, and have better hours in which to walk the show floor. The show starts on Friday, Feb. 9, and runs until 3 p.m. on Sunday, Feb. 11.

Seven show seminars will be presented as half-day programs, as will three new technician training programs:

- Compact Diesel Engines
- Sprayer Calibration
- Irrigation Pipe Repair and Fitting.

Some seminars have been retitled to more appropriately reflect their content: Irrigation Water Quality (formerly Water Quality); Reclaimed Water Irrigation (formerly Effluent Water); Turfgrass Ecology (formerly Implementing Strategies and Plans for Turfgrass Environmental Systems); and Planting Design for the Golf Course (formerly Landscape Design and Plant Materials).

Tour Disney golf

The Turfgrass Tour will include a look at Walt Disney World's golf and recycling facilities, its compost center, landscape and garden areas and sports field construction site.

Other tour stops include Grand Cypress Golf Course and the Scotts Co. Florida Research Facility.

Allied presentations

Several of GCSAA's allied associations—The American Society of Golf Course Architects, the American Zoysiagrass Association, the Society of Golf Appraisers, The National Golf Foundation, and the USGA—will present programs on Feb. 10-11.

The Wednesday, Feb. 7 keynote speech will be given by Lou Holtz, head football coach at the University of Notre Dame. □

1996 GCSAA Conference and Show

TRADE SHOW HOURS

Distributor preview
Members only
Open hours: Saturday
Open hours: Sunday
Open hours: Monday

OLD

Friday afternoon
—
9 a.m.-5 p.m.
9 a.m.-5 p.m.
9 a.m.-1 p.m.

NEW

Friday morning
Friday afternoon
9 a.m.-5 p.m.
9 a.m.-3 p.m.
closed

EVENT

Golf Championship
Seminars
Opening session
Environmental General Session
President's Reception
Banquet & Show
Annual meeting
Concurrent sessions
Friends of Foundation Recp.
Architects Session
USGA Green Section Session

OLD

Monday-Tuesday
Monday-Thursday
Thursday evening
Sunday morning
Sunday evening
2nd Monday evening
2nd Monday morning
Friday, all day
Sunday afternoon
Sunday afternoon
2nd Monday afternoon

NEW

same
same
Wednesday evening
Thursday evening
Friday evening
Saturday evening
Saturday morning
Friday & Sunday morning
Saturday afternoon
Saturday morning*
Sunday afternoon

*tentative

Herbicide efficacy linked to weather

by JEFF LEFTON/Mainscape, Inc.

Numerous factors influence the success or failure of a broadleaf herbicide application. Salt formulations, for instance, are more influenced by environmental factors than ester formulations. Look at the label to determine if the formulation is a salt or ester.

The environmental conditions that influence performance are air and soil temperature, light intensity, wind, rain fall after the application, drought stress, relative humidity and dew formation. Usually, more than one factor combined will determine the success or failure of a broadleaf herbicide application.

Air and soil temp

Spring broadleaf herbicides will not be effective if night temperatures are below freezing. Scientific data suggests that esters can be used in the mid-spring when:

- nighttime temperature stays above 32 degrees F;
- the soil temperature is above 45 degrees F;
- daytime temperature is above 45 degrees F;
- after 110 units of Growing Degree Days (base=50 degrees F).



Maximum uptake of herbicide on the leaf surface depends on the length of time it remains liquid on the surface.

Scientific data also suggests that salt formulations will become more effective when:

- the soil temperature stays above 55 degrees F;
- the air temperature is above 60 degrees F;
- after 150 units of Growing Degree Days (base=50 degrees F).

University data suggests that fall applications do not require using esters in cooler weather. The reason for this is the high soil temperature. In general, for fall broadleaf weed control applications, you can expect actual weed control in the late fall or the following spring. For very late fall applications, the herbicide is absorbed and translocated. However, symptoms and death will not be apparent until the following spring.

Ambient factors

Light generally enhances the phytotoxicity of broadleaf herbicides by increasing the absorption and translocation of sugar compounds. The broadleaf herbicide is transported with the sugar compounds in a piggy-back fashion. Sunny conditions usually result in greater herbicide activity than cloudy, overcast skies. Broadleaf weeds

translocate a great amount of sugar compounds in the fall downward. Because of that, fall weed applications will normally result in a broader range of broadleaf weed control.

Wind dries the herbicide on the leaf surface. Maximum uptake of a herbicide on the leaf surface depends on the length of time it remains on the surface in a liquid state. Wind can dry out the solution, and limit up-

take by plants.

Salt formulations are more adversely affected by rainfall soon after the application than esters.

A rain-free period of four hours after the application is best for the efficacy of most salt-formulated herbicides.

Broadleaf herbicides are usually less effective in controlling drought-stressed plants than actively growing, unstressed plants because herbicide absorption and translocation is drastically reduced.

The absorption of salt formulations is greatly influenced by the **relative humidity** for up to 24 hours after the application. Herbicides are absorbed as liquids. High relative humidity will help keep the upper leaf surface hydrated, for better penetration of amine salts. The herbicide remains wetter on the leaf surface for a longer period of time, and more is absorbed.

Dew formation the day after the application will normally help increase herbicide penetration from salt formulations. Dew can re-dissolve the salt herbicide on the leaf surface. This increases the chance for additional absorption. Esters cannot be re-dissolved with dew.

Surfactants may help under extreme circumstances. An example would be continued misty weather in the spring. A 0.5% solution could allow the herbicide a chance to hold on the surface and be absorbed under these very specific conditions.

A late summer application of a broadleaf weed control may not be very effective. In many cases, the weather may still be dry, even with cooler temperatures. In addition, many of the broadleaf weeds have not germinated. The late fall fertilization round could actually grow more weeds due to poor timing of the last application. Lawns properly treated with a herbicide in the fall should be somewhat weed-free the following spring.

—The author is a certified professional agronomist. He is director of marketing for Mainscape, Inc., Fishers, Ind.

SUPPLIERS CORNER

Lesco Inc. has purchased the Pro-Lawn Division of Agway Inc., a Syracuse, N.Y.-based agricultural cooperative. Pro-Lawn supplies professional turf-care products to golf courses and commercial landscapers in 16 states.

Trevor Thorley has been named director of specialty products for the agriculture division of **Bayer Corp.** He will be responsible for overseeing the turf and ornamental and pest control businesses as well as the introduction and growth of Premise and Merit insecticides. Thorley was named director after Allen Haws decided to retire.

Ciba Turf & Ornamentals International has extended its

agreement with the Golf Course Superintendents Association of America (GCSAA) to sponsor an international lounge at this year's GCSAA Convention and Show. Ciba will sponsor the lounge, in which interpreters are available, for the next three years.

The Tony Butler Golf Club team from Rancho Viejo, Texas, won the ninth annual international **John Deere** Team Championship Golf Tournament at Wild Wing Plantation, Myrtle Beach, S.C. Members of the team: superintendent Richard Flores, professional Randy Walker, director Michael Murphy, city commissioner Dr. James Rowe and Deere distributor Chad Mobley. They beat 30 other teams.

The Pebble Beach (Calif.) Company has signed two exclusive agreements with turf equipment manufacturers. **Ran-somes** is new exclusive supplier of turf maintenance equipment, and **Rain Bird's Golf Division** will renovate Pebble Beach's irrigation system. The agreement with Ran-somes is for three years. Rain Bird, meanwhile, will also provide technical support for five years. Both agreements were consummated by Pebble Beach vice president Ted Horton.

Rain Bird also promoted Janet Bednarski from the Golf Division's marketing program manager to satellite controller product manager, and named Mindy Donenfeld Liron as rotor brand manager.

David Woods is new chief operations officer for **The Charles Machine Works**, manufacturer of Ditch Witch products. He will oversee product development, manufacturing, marketing, and parts and service. Kurt Andrews will succeed Woods as director of marketing.

Curtis Clark has been promoted to sales manager for **American Cyanamid's** Turf, Ornamental and Pest Control Group. The former market manager for Cyanamid's consumer lawn and garden products will oversee sales for consumer and professional products.

Bob Yarborough is new northern division professional products manager for **Terra International's** turf and ornamental business. Yarborough has worked in the industry for 17 years, most recently as a vice president at Lesco.

Alamo's new national sales manager is Jack McKay. He has been in various managerial positions with Manitex, Cloverdale Equipment and Depco Equipment.

Gene Hintze is new turf and ornamental business manager for **Sandoz Agro's** Specialty Business Unit. Hintze will be responsible for establishing the overall direction, planning, implementing, monitoring and analyzing the company's marketing efforts in the turf and ornamental industry. In addition, Terri Lohmann, recent recipient of the Sandoz Presidential Award, was promoted to marketing services manager.

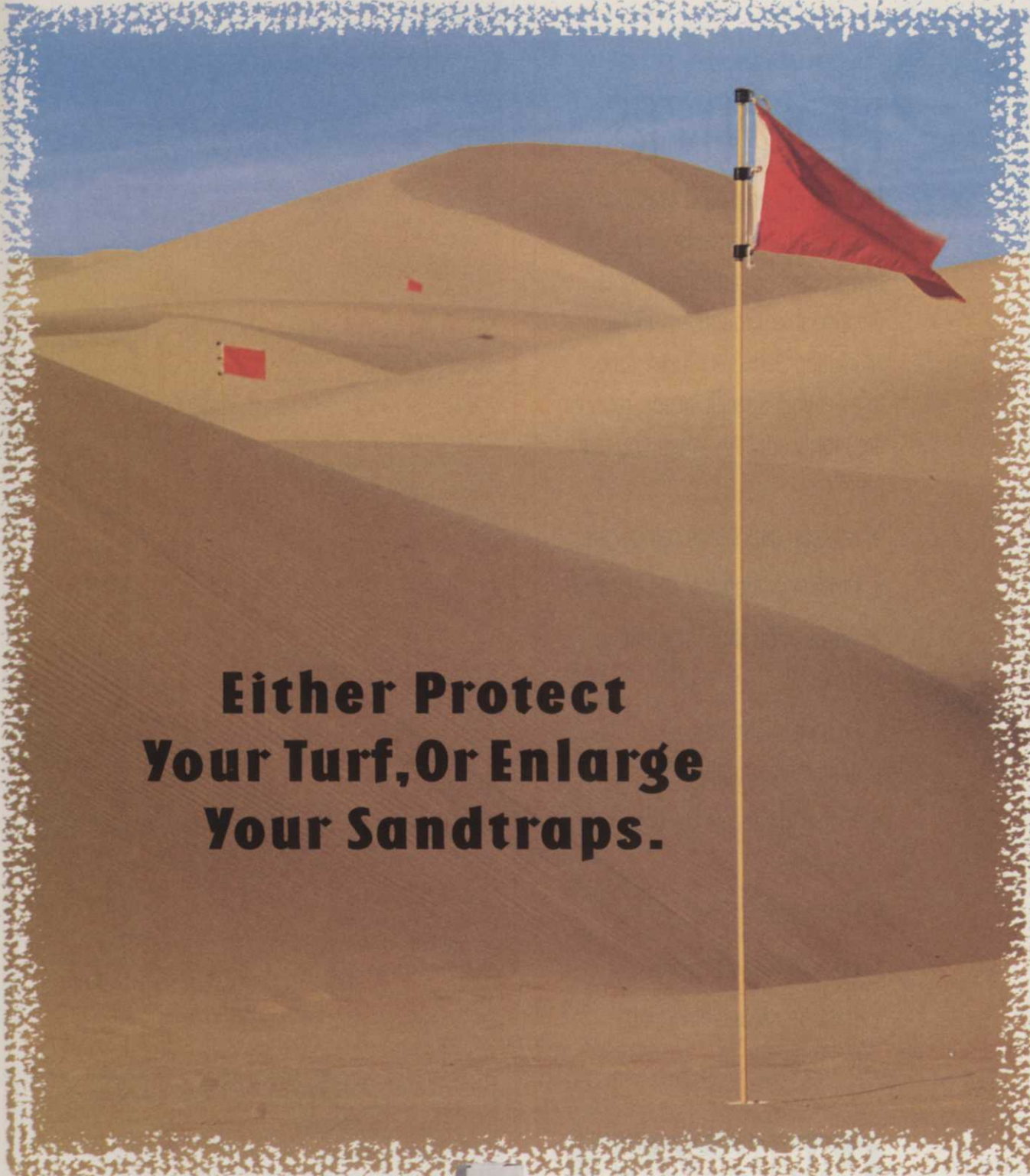
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VIDEOS AND LITERATURE FOR THE GREEN INDUSTRY

FOR SMALL BUSINESSMEN...A fully revised and updated edition of "Small Time Operator" by accountant Bernard Kamoroff has just been published. The book tells how to start your own small business, keep your books, pay your taxes and "stay out of trouble." The 224-page book has more than 500,000 copies in print. Price is \$16.95. For more information: Bell Springs Publishing, (707) 984-6746.

INSECTS BEGONE...The "Handbook of Turfgrass Insect Pests" from Drs. Rick Brandenburg and Michael Villani includes 60 color photos, 58 illustrations, a directory of services for obtaining local information and a glossary. Price is \$30, plus \$2.50 shipping and handling in the U.S. Send prepaid orders to ESA Sales, P.O. Box 177, Hyattsville, MD 20781. Send credit card orders to: ESA Sales, 9301 Annapolis Rd., Lanham, MD 20706. Foreign orders, more information or charge-by-phone: (301) 731-4535.

TENDER LAWN CARE..."The Handbook of Successful Ecological Lawn Care" is now available from the Edaphic Press, P.O. Box 107, Newbury, VT 05051. The 284-page soft-cover book is written by Paul D. Sachs. It "enables the reader to make common sense decisions about turf problems that can reduce the need for pesticides." Price is \$18.95 plus \$1.75 postage and handling. More information: (802) 222-4277.



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Events

FEBRUARY

1-3: Turfgrass Producers International Midwinter Conference, Austin, Tex. Phone: (800) 405-8873 or (708) 705-9898.

4-6: The Fertilizer Institute Annual Meeting, San Antonio, Tex. Phone: (202) 675-8250.

5-6: Illinois Landscape Contractors Assn. Landscape Foreman Training, Holiday Inn, Willowbrook. Phone: Julie Nicoll, (708) 932-8443.

5-11: International Golf Course Conference & Show, Orange County Convention Center, Orlando, Fla. Phone: (800) 472-7878.

6-8: Landscape Contractors Association MD/DC/VA Winter Workshop, Bethesda Marriott, Md. Phone: (301) 948-0810,

8: Northeastern Pennsylvania Turfgrass & Maintenance School, White Haven. Phone: Andrew McNitt, (814) 863-1368.

11-14: Associated Landscape Contractors of America's Executive Forum, Phoenix, Ariz. Phone: Elise Lindsey, (703) 620-6363.

13-14: Ohio Associated Green Industries Winter Conference, John S. Knight Center, Akron. Phone: (614) 263-9311.

19-20: Michigan Irrigation Association/Irrigation Association Troubleshooting classes, Grand Rapids, Mich. Phone: (703) 573-3551.

20-22: Illinois Landscape Contractors Assn. Winter Seminar, Lisle. Phone: Julie Nicoll, (708) 932-8443.

22-23: Michigan Irrigation Association/Irrigation Association Troubleshooting classes, Traverse City, Mich. Phone: (703) 573-3551.

25-27: Wisconsin Landscape Federation Winter Convention, American Club, Kohler. Phone: (414) 529-4705.

27: Tree Insect, Disease and Rootzone/Soil, Southfield (Mich.) Civic Center. Phone: Michigan Arborist Association, (800) 622-4055.

27-28: Advanced Turf Management Symposium, Rutgers Cooperative Extension & Cook College. Phone: (908) 932-9271.

27-29: Western Pennsylvania Turf Conference & Trade Show, Pittsburgh Expomart, Monroeville. Phone: (814) 355-8010.

28: New Jersey Landscape '96 Trade Show & Conferences, Meadowlands Exhibition Center, Secaucus. Phone: Skip Powers, (201) 664-6310.

An off-season questionnaire

Finance

- In 1995, were you ahead or behind budget in sales?
- Were costs over or under budget?
- Was labor a higher percentage of revenue than budgeted?
- How close were fuel and other vehicle costs to budget?
- How often is your budget compared to actual?
- What months are anticipated to be the tightest for cash?
- What financial planning is in place to overcome the cash obstacle?
- How willing is the bank to work with you?
- What overhead expenses can be reduced or eliminated if necessary?
- Which costs could be eliminated without sacrificing quality?
- Will revenue lost in the first six months be recovered?
- Why is the profit projection achievable this year?

Personnel

- What motivates your employees?
- What types of incentives work best?
- How thorough are your training programs? Are people making the same mistakes over and over again?
- How significant is the difference between the best and the worst employee?
- Are the more experienced employees still improving each year?

Marketing

- Do you actively seek feedback from customers about your service?
- Do you check on each customer at least once during the year?
- What is your retention rate compared to last year?
- How much new business is being sold due to referral leads?
- What improvements have been made to your vehicles over the winter?
- How well are vehicle maintenance reports charted?
- How can the vehicles be over the course of 1996?
(For contractors only)
- Who is the target market for new business?
- What new niches will you try to enter in 1996?
- Is the telemarketing script the right length?
- How many calls will be placed each day, week and month?
- What is your retention rate on telemarketing sales from prior years?

cont. from page 18

your employees' 1993 and 1994 performance against their 1995 performance. Improved efficiency, quality of work and professionalism are all key areas to assess when you evaluate personnel.

Marketing isn't advertising

Customer service, pricing, demographics, consumer psychology, persuasion and sales—along with advertising—are but a few components of an effective marketing plan. To be prepared with alternative solutions when a new issue arises, you need to become familiar with each area of marketing.

Marketing allows you and your staff to be creative in finding ways to come up with a plan. Through proper training, your marketing plan may be simplified and you might achieve quicker results.

Waiting for the snow to melt and the sun to shine to implement your 1996 marketing plan will allow your competitors to get a jump on you—and being one step behind the competition is *not* the way to start the new year.

In 1995, many companies in this industry went "back to basics" to attract new or retain existing customers (including golfers). If you develop your marketing plan by listening to customers and drive toward customer satisfaction, your plan will be much simpler and probably more effective.

The following marketing tools work.

Customer communication—
Communication is an opportu-

nity to attract or retain customers. Once someone becomes a customer, feedback from that person is crucial. Whether a commercial or residential account; a senior golfer, club member or junior, customers can provide referrals for up to 10 new prospects. It's crucial to know how satisfied or dissatisfied your "customers" are.

Vehicles—A common mistake is the little value that is placed company vehicles. They offer an excellent means to reach both the target market and unsure customers.

Because vehicles are traveling billboards, they tell a community how professional you and your employees are. For contractors, displaying colors, logo and/or telephone number on the vehicle will help promote your company.

Telemarketing (contracted services only)—It's very difficult to measure the effectiveness of telemarketing, which may begin with a phone call and progress to direct contact when the sale is near the closing.

If you use telemarketing after a sequence of direct mail pieces or other inquiries, telemarketing will achieve significantly better responses than a "cold" call. **LM**

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Utility trencher comes with productive blade

Vermeer's V-8550 rubber-tire utility trencher is now available with a 6- or 8-way backfill blade, each of which is designed to make restoration work easier and more productive.

The standard 6-way blade features joystick-controlled hydraulic lift and tilt for smooth operation. A float position on the lift function allows for smooth back-dragging and easier cleanup. The heavy-duty 8-way blade is designed for more rugged conditions and adds side-shift capabilities, allowing operators to move it left or right outside of the tire line.

The V-8550 has a four-cylinder 85 hp Cummins diesel engine. Other varied attachments from vibratory plow to backhoe to rock wheel are available.

Circle No. 292

New weed-killer acts immediately

Scythe non-selective, non-systemic contact herbicide from Mycogen Corp. that makes short work of weeds. According to Mycogen, weeds begin to show the effects of an application

within a few minutes, and are often completely brown within a few hours.

Because it is made from a naturally-occurring fatty acid that quickly dissipates in the soil, and because it knocks down a broad spectrum of weeds, it can be used practically anywhere, Mycogen contends. In addition, there is no soil residual activity, so it can be sprayed on seedbeds and in flower pots. Since it only affects green plant tissues, Scythe is said to be ideal for cleaning up weeds around



shrubs, trees and other ornamentals.

Scythe can also be used to "turbocharge" glyphosate, Mycogen says. Adding Scythe to your glyphosate mix, results in fast action combined with long-term systemic activity.

Circle No. 293

Complete line of turfseed for all uses

Terra International introduces a complete line of turfseed for virtually all lawnscapes uses. The products:

*Affinity perennial ryegrass: excellent mowability, pest resistant, attractive color and texture; for seeding and overseeding golf courses, commercial lawns, athletic fields.

*Best Blue Kentucky bluegrass blend (Glade, Conni, Nustar, Baron): deep green, dense, durable, for high maintenance areas at country clubs and upscale lawns and estates.

*Deepshade Mix (Pro-former, Koket, Pennlawn fescues and Glade and Baron bluegrasses): shade tolerant,

good color, disease resistant for lawns in shade

*Fine Fescue Mix (Eureka, Proformer, Koket, Pennlawn): low maintenance, beautiful color, for sun or shade.

*Fairway Blend (Affinity, Stallion Select, Patriot II ryes and Nustar, Baron, Conni blues): genetically diverse, proven performer, economical for golf course fairways.

*Median Mix (Fulfs alkaligrass, Pennlawn fescue, Baron blue, Affinity rye): salt tolerant, drought tolerant, winter hardy for low maintenance areas.

*Special Mix (Park blue, Rodeo II rye, creeping red fescue): low maintenance, eco-

nomical, versatile for parks, home and commercial lawns, golf course roughs

*Sports Quality (Affinity, Patriot II, Stallion Select ryes, Nustar, Baron, Conni blues): durable, great recovery ability, easy to establish for playing fields.

*RyteRye (Affinity, Stallion Select, Patriot II ryes): attractive, durable, quickly established for overseeding athletic fields and golf courses.

*Turf Blue (Newport, Park, Argyle blues): great value, durable, versatile for low maintenance, low cost.

*Utility Turf Mix (Baron, Conni, Merit blues and Affinity, Stallion Select ryes): versatile, hardy, eye-appealing for

renovating older existing turfs

*Watertight (Avanti, Taurus, Wrangler tall fescues): excellent disease resistance and color, good leaf texture for home lawns, industrial sites, medians and parks, especially in the transition zone.

*Watertight 10, Watertight Plus (Avanti, Taurus, Wrangler tall fescues, Gnome blue), Watertight + Rye (Avanti, Taurus, Wrangler tall fescues, Affinity rye): summer density, good leaf texture, superior disease resistance for low maintenance sports turf, commercial turf or home lawns, including transition zone.

Circle No. 294