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*Power-lift is now standard on the 1200A. Flipping a switch is all it takes to raise and lower your rake.*

**BUDGETS** from page 29G

"borrow" from other line item accounts to cover the costs.

We may use this fund-shifting technique within the operational budget for other reasons, too. For example, additional funds to replace concrete damaged during a car accident or to cover repairs of unexpected equipment breakdowns may be diverted from the landscape renovation category. We do stick to the budgeted line item figures as closely as possible, and must stay within the constraints of the overall operational budget.

We divide the grounds operational budget into three defined seasonal areas: July through fall; winter; and spring through June. Major capital improvement projects and renovation work are accomplished most easily from the third week of May to the second week of August, when fewer people are on campus. But because the "budget year" starts July first, we currently have a tight window in which to get major work done.

Those planning and administering budgets are always looking for ways to cut costs and increase operating efficiency.

In some cases, pre-committing funds to specific uses can be beneficial. We pre-contract with greenhouse growers for production of the specific varieties and quantities of annuals and perennials for campus needs so we're assured of getting what we want, when we need it, at a predetermined price.

We also make pre-season purchases of certain turf and landscape maintenance products. To keep the overall budget in perspective, we note these pre-committed line items as "encumbered" on the budget printout until the funds are actually spent.

We compare the costs and efficiencies of performing various services in-house with the costs of hiring contract labor for those services. For example, we currently use in-house crews for sidewalk snow removal, and contract for the parking lot snow removal which requires a fleet of heavy equipment.

We analyze equipment use, down-time records and maintenance and repair costs. Equipment replacement is scheduled into the appropriate budget as effective usage time drops and cost of use escalates. Despite a good preventive maintenance program, we always include a line item figure for unexpected repairs.

We keep records of all outside expenditures that were not included in the original budget to determine if they merit a line item budget allocation for the next year.

Budgeting takes commitment. It's a matter of weighing the effect of defined needs and fund requests for their impact on the overall short-term and long term goals. It is essential; an effective program requires solid guidelines.

*—Richard Moffitt is Superintendent of Grounds for Saint Louis University, St. Louis, Mo., and a board member of the national Sports Turf Managers Association.*

# 10 top turf tips

■ David Oatis of the USGA Green Section looks at

all the "turf tips" his organization has produced in the past 12 years.

"We're not playing the same game on golf courses we played 10 to 15 years ago," he says, speaking to the New Jersey Turfgrass Expo. "Championship conditions of 20 years ago we surpass on a daily basis now. Plant material is superior, we have faster greens, wonderful research, genetic engineering on the horizon, and weed-resistant varieties.

"The best ideas come from everyday superintendents who are just trying to do their job better."

He picks his top 10, pointed at the northeast sector that he serves. Here are his choices, in decreasing importance:

**#10** - Using grooming and rolling—with "good common sense and moderation"—to produce a smoother, faster putting surface.

**#9** - Using a high-tech camera to find out what's inside drain pipes if you have a high sand green and aren't getting good drainage.

**#8** - Using 2x4 wood to level new greens (like you would concrete), or rent-

ing high-tech laser equipment.

**#7** - Separating the layers of soil, for courses with non-homogenous soil profiles, to get tested. Don't mix the layers.

**#6** - Deep aerify greens with Floyd McKay or Verti-Drain or Hydroject machines. "This isn't a panacea, but a good idea if done properly," Oatis says. First, though, check for proper soil moisture so the aerification process is successful.

**#5** - "Hire someone with a computer to accurately diagnose irrigation coverage problems. You can use it to simulate what effect changes would have in coverage without ever going out in the field and trying them," Oatis notes.

**#4** - Using burlap bags filled with soil as edging when rebuilding sand bunkers. You can sod right over the bags, which decompose with time.

**#3** - Installing supplemental irrigation systems for the banks around greens.

**#2** - Using asphalt or clay tampers to make sand bunkers playable almost immediately. "But do it before you open the hole for play," Oatis says, "because you don't want to get a reputation for having soft sand."

**#1** - Using time-lapse photos (one hour apart) to chart the path of shade across any greens at which you need to take down



**Oatis: Time-lapse photography can help superintendents.**

trees. These photos will prove to members that the trees were doing more harm than good.

"At clubs with members with a sense of humor," he suggests using chain saws with the names "Thunder" and "Lightning." "You can safely and honestly say," he notes, "in response to members with questions about tree removal that 'thunder and lightning got it.'"

*—Jerry Roche*





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# Communicate with your course officials!

■ A superintendent's job is hard enough without having to worry about clashes with greens committees.

So Robert Stubbe, grounds committee chairman at Oak Hill Country Club in Fairport, N.Y., wants superintendents to do themselves a favor by telling greens committees as much as possible about the super's job, and how members can better cooperate.

"For 40 years, I played golf with no comprehension of the work required," says Stubbe, who's learned about the conflicts that can arise between superintendents and club officials.

It was shortly after he was named grounds chairman in 1991, says Stubbe, that he realized the superintendent must provide the golfer with a better understanding of what it takes to manage a golf course landscape.

"With the growth of golf, supers need to find ways to educate the new golfers

about how to treat the playing surface," he notes.

**Spell out policy**—Stubbe says the superintendent and his staff must establish a dialogue with the membership to explain the concepts and timetables involved with topdressing, aeration, and other turf management practices, and policies for special situations.

"If you have a 'frost delay' policy or policy about not running golf carts in wet weather, spell it out." Other tips:

- Invite the greens chairman to attend a Golf Course Superintendent's Association show, or state association show.

- Consider holding a "club official's forum" on a state or local basis.

- Invite your club officials or club president to visit a cooperative extension site or university research department.

- Invite one or more club officers to join monthly crew/committee meetings.

**Environmental awareness**—With

continued interest in reducing the amount or frequency of control products used to maintain golf courses, Stubbe suggests that players might have to settle for a playing surface that's firmer and more natural looking, and not as green as what they're used to.

More trees are becoming important in some parts of the course, and not so important in others, usually around greens that are less shade-tolerant. Explain the reasoning behind this and other turf care practices.

"We are part of a growing industry and game," says Stubbe, who believes that club officials must in turn make the superintendents aware of all they can about club management which may have a bearing on the super's job.

Stubbe spoke during the latest New York State State Turfgrass Association meeting in Rochester, N.Y.

—Terry McIver

## Color, groundcovers work wonders in small spaces

■ Flower color, colorful buds, fragrance and attractive foliage are the key elements in making small landscaped areas look larger, according to Craig Stock of Stock Landscaping & Design, Westfield, N.J.

Stock, speaking at the New Jersey Turf Expo, said that flower color "is the most obvious thing people look at." He suggests you stagger the flowers so they bloom throughout the year.

"One of the great things about using perennials is that you can divide them and use them in different places and save yourself a lot of money," he says. And don't forget about bulbs.

"Bulbs can do a lot in the early spring. They don't cost much, are easy to do, and you get that good early spring jolt," Stock observes. "It's good to mix bulbs in with other plantings. If you have problems with animals, rats and deer, daffodils are better than tulips. I like to see bulbs in masses—not too sterile or too varied. Annuals and bulbs are good complements."

He says that buds are also attractive on a lot of plants, and any fragrances are a plus because "fragrance brings back good memories to people and most fragrant

plants are at least semi-resistant to deer."

Foliage is also important to consider. It's there, in full view, year-round, and "plants can look decent when they're not flowering."

- To give the illusion that small areas are larger, don't cut them up with landscaping.

- Flowering bedlines give an illusion of a larger area and direct your eyes to a focal point, (but) try to stay away from areas with sharp angles to minimize trimming.

- Plantings around decks and fences can soften them. Think about vines around fences, because you don't lose horizontal space.

- When planting, stagger plants to give more depth and natural feeling. Don't plant them in rows.

- Generally, groundcovers should be used more often, sometimes in place of mulch. "I recommend using groundcovers rather than mulch. Finer textured materials make small areas look larger."

- "I use ornamental grasses a lot for texture, vertical height and movement." They are very economical and many have good fall colors.

- Berries help attract wildlife and are good display.

- Plan for fall color.

- In shady areas, use light-colored plants because they show up better. Stick with needle- or deciduous-type plants in the sun because they hold up better. Consult a guide or text.



**Stock: stagger plants to give more depth and natural feeling.**

- Arbor vitae can be used to separate properties rather than a fence.

- If planting bulbs in annuals, plant in groups and masses.

- If you use smaller material, you can save money and it will fill in, as long as you don't overplant.

—Jerry Roche

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# Consider safety and purpose before you build a pond

■ Ponds add much to the beauty, value and enjoyment of a landscape. But they're not easy to install. They have to be well-planned and properly installed to save yourself problems later.

"Most ponds take a lot of time and money to build," says Dennis Ferraro, of the Douglas County Extension Office, Omaha, Neb., so you don't want to have to add even more investment due to poor planning.

Ferraro says proper planning includes:

- the size and shape of the pond;
- purpose behind the pond; do you want to attract wildlife, or solve a watershed problem;
- the type of plants do you want around or in the pond;
- type of materials on the floor of the pond; and
- safety and liability considerations.

"You have to plan, exactly, the shape of the pond, where it's going to go, everything about it," insists Ferraro.

Plants should be included as part of the pond design. "You do not want invasive plants growing across the entire pond," warns Ferraro.

Nor do you want to worry about tree roots invading the masonry around the pond. Maples or oaks are especially troublesome due to their long root systems.

**Point of focus**—You want the pond to fit well into the surrounding landscape, not overpower the view, so pond shape and size are important. Types of surroundings can be a golf course, residential areas or office buildings.

**'An attractive nuisance'**—Ponds increase liability concerns.

Ferraro says to learn what rules and regulations the city or county has on the books for pond construction.

"In many cities," says Ferraro, if the pond is more than two feet deep, you must have a locked fence around the property."

**Design considerations**—"My theory is to make the pond as large as you can for the area," advises Ferraro. "I haven't had anybody tell me, 'I wish I had made that pond smaller.'"

For protection against heavy rain, the pond should be able to hold an additional 6.5 inches of water in a 24-hour period.

"You need to calculate where the overflow and drainage are going to go. You

can't have everything going into a spillway," says Ferraro, "because a spillway goes into a neighbors property or street."

Ferraro says that in the heaviest storm conditions, the pond has to be able to divert a foot of rain in 24-hours.

**Run-off**—"What's in the run-off?" asks Ferraro.

"Is it from a sewage lagoon, or an area with a lot of chemicals, or is it run-off from an area where a lot of lawn insecticides are used?"

"Many of our new insecticides [pyrethroids] have very low toxicity to mammals," says Ferraro, but are highly toxic to cold-blooded animals.

"In those cases, you have to have a very well-documented IPM—Integrated Pest Management program—with low pesticide usage, or use non-pyrethroid pesticides, or find a way to divert the watershed and have an area where you have drainage, so the water drains around the pond."

Ferraro adds that many water plants are "super sensitive" to herbicides, especially broadleaf herbicides.

**Ratios**—The bigger the pond, the easier it is to take care of, says Ferraro.

"A big pond can make it's own ecosystem and it almost takes care of itself. If it's bigger than 50 ft. in diameter, there's very little maintenance," except in run-off situations.

Smaller ponds heat up quickly, which can harm plants and animals.

"You always want more deep area than shallow area," says Ferraro. "If you're

going to use [the pond] for irrigation, it should be 7 to 8 feet deep. If it's just for aesthetics, and you want native plant materials, and native animals, to be able to withstand the winter without having to take them out, it should be 3 to 4 feet deep.

The depth ratio between the uppermost portion of the bank to the pond floor should always be 3:1. For example, if the water is 1 foot deep at the top edge, the intermediate depth should be between one-and-a-half feet deep, and the depth at the floor should be 3 feet deep.

**Materials.** The pond floor must be coated with the proper material, or problems will occur almost immediately.

One of the best materials, according to Ferraro, is called bentonite. A volcanic clay, bentonite swells up in water, and seals the natural spaces in the soil. When a root tries to breach the surface, the bentonite closes around it.

Bentonite is mixed into the soil before being put on the floor of the pond, at a rate of 20 lb./sq. yd.

Bentonite, however, will kill fish by lodging in their gills and expanding. So do not stock the pond for at least two days after filling it with water.

It's also important that the workers wear dust masks when using bentonite. If inhaled, bentonite will expand in the lungs.

Ferraro doesn't recommend concrete, due to cracking. But some concrete contain elasticizers which allow the concrete to expand. And if you do use concrete, Ferraro recommends that you first put down 6 inches of sand.

Fiberglass is "great for small ponds," says Ferraro.

—Terry McIver

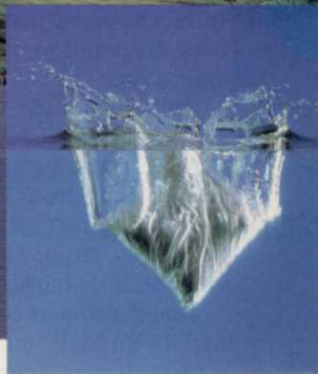


This pond, at Ohio's Westfield Country Club, was built between two 18-hole courses. Trees are placed farther back so that falling leaves are not a problem.





Silverado Country Club, Napa CA



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# Managing *Poa annua* easier

**Significant advances in managing out *Poa annua* in golf course turf have been made in recent years.**

by Norman Hummel, Ph.D.

■ Whether you're trying to manage or eliminate it, annual bluegrass (*Poa annua*) should be dealt with in the spring.

Poa is a prolific pest infesting golf courses, lawns and most mown turf areas. In recent years, many techniques have been developed to manage both for and against poa.

Those who prefer to live with it know its spring seed production is most objectionable. On golf courses, the abundance of seedheads detracts from the appearance, and may affect playability as well. Seedheads can be suppressed by using materials that regulate plant growth.

One of the most commonly-used products is Embark (mefluidide). On golf courses, it is recommended for fairways only. Properly timed, low rates of Embark will suppress the formation of poa seedheads.

Embark should be applied at labeled rates (for seedhead suppression) to actively growing turf, but before seedhead emergence. Examine poa sheaths on a regular basis for the presence of developing seedheads to ensure proper timing. Use a spray marker to avoid spray overlap or skips.

On greens, the wetting agent Aqua-Gro can be used for suppressing seedheads. Studies at Cornell several years ago found Aqua-Gro applied at 4 oz./1000 sq. ft. in 10 gallon of water resulted in a 65-70 percent reduction in seedheads. Apply Aqua-Gro about 10 days before seedhead emergence, repeating again two weeks later.

Some significant advances in managing out *Poa annua* in golf course turf have been made in recent years:

1) Using growth regulators can accelerate these conversions. Growth regulators that suppress *Poa annua* to a greater extent than a desirable grass (like bentgrass) will eventually result in the desirable grass predominating.

2) We also know that merely switching to lightweight mowers and removing clippings can effectively convert to more

desirable grasses.

One growth regulator that can be applied in the spring is paclobutrazol (Scotts TGR). Applications should be made to actively-growing turf, but before seedheads emerge. Cornell studies indicate the lower label application rate may be best for spring application on greens to minimize discoloration.

If you have less than 30 percent desirable grasses in your fairways, consider a total renovation program, followed by TGR applications to keep the poa out.

A spring insect problem exclusive to *Poa annua* is the hyperodes or annual bluegrass weevil. Adult weevils overwinter in leaf debris and emerge in April and May to feed, mate and lay their eggs. Young, legless larvae feed within annual bluegrass stems through May and June.



**Hummel: If you have less than 30 percent desirable grasses in your fairways, consider total renovation.**

Hyperodes weevil is best controlled when in the adult stage; that is, late April or May. One recommendation is to apply an insecticide when the flowering dogwood is in full bloom. Materials recommended (at least in New York state) include Dursban and Oftanol.

—The author is in the Department of Floriculture and Ornamental Horticulture at Cornell University, Ithaca, N.Y. This article originally appeared in the "Cornell University Turfgrass Times"

**BERGSTROM** from page 22G

water use and increasing the percentage of water drawn from the canal. This requires more testing to ensure that we balance maintenance procedures to compensate for the higher salt levels in the canal water."

Many of the chemicals available in California seven years ago have been taken away, and others are in jeopardy, Bergstrom says. "We've always practiced IPM, and now are doing more to adjust practices to avoid problems, and to use natural and biological controls when treatments are needed. I think chemical restrictions will tighten even more in the future."

**By law, Bergstrom holds weekly 'tailgate safety meetings' that focus on a specific issue, or open up the floor to suggestions.**

By law, Bergstrom holds weekly "tailgate safety meetings" that focus on a specific issue, or open up the floor to suggestions. It's also essential, Bergstrom says, to document everything.

"We keep an on-site file for each maintenance employee, including pesticide applicator training, weekly safety training sessions, and equipment training. These files verify the employee's training in specific areas, record our compliance with government regulations, and support the company's position if liability becomes an issue."

Most of Bergstrom's crew members have been on board for five or six years. He feels comfortable that "they've been 'through the hoops' before, they need less supervision, and they understand the demands of Mother Nature and special events can make on the work load.

Recent improvements:

● All supervisors, the office, pro shop and club manager all have two-way radios.

● An agronomist, Virgil Robinson, has joined the staff.

● Full computerization of Bergstrom's department is to come in 1995.

"We're excited about the progress we're making," Bergstrom says. "As individuals and as an industry, we have to keep moving ahead."

—Steve Trusty