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3. What is your facility's annual maintenance budget?

28 O E \$300,001-\$500,000

29 O F \$150,001-\$300,000

30 G Less than \$150,000

55 Architect/Engineer

24 A More than \$2 Million

26 C \$750.001-\$1 Million

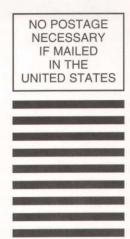
27 D \$500.001-\$750.000

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agreed on the need to eradicate as many problem areas as possible, which meant the connection of the fairway laterals to the 4-inch mainlines.

Normally the pipes would be coupled by threaded ends and glued, but Greytok and Leibold wanted that procedure eliminated. At the 2002 GCSAA Conference and Show, the two visited the Leemco booth to discuss the possibility of alternate means of connection. The Colton, Calif.-based company designed a gasketed coupler specifically for Winged Foot. Greytok said the customized pieces should eliminate many of the leaks resulting from the common way of connection between mainlines and laterals.

There are other new procedures Winged Foot is implementing:

■ The grounding procedure is also slightly different. Rather than confront the rocky terrain with a combination of grounding rods and grounding plates, Winged Foot's controllers

will rely solely on grounding plates for protection. Granger said he's not aware of any other layouts installing new irrigation systems that have opted for just grounding plates.

- Other work going on below ground has helped to increase the output of the three wells that feed the lone irrigation pond. Winged Foot also purchases water from the town of Mamaroneck.
- Because the three wells were producing only about 325 gallons a minute, something needed to be done to increase output. Granger suggested, "hydrofracturing," a procedure in which water is forced under high pressure down into the existing well in an effort to break open or widen the cracks in the rock through which water flows into the wells. The Winged Foot wells now produce 710 gallons per minute.
- Installation of a Rain Bird Cirrus central control system with the new Rain Bird PAR+ ES satellites. Each

Rain Bird PAR+ ES satellite can handle up to 72 stations. Winged Foot will be the first complete system installed with the new Rain Bird PAR+ ES satellites.

Unbelievably, the irrigation project was not the only work being done on the courses. On the same day Leibold began digging, Winged Foot began the last phase of its fairway bunker renovation project to be completed early this year. Also, an outside firm began deeptine aeration of the entire club's greens.

As if the irrigation upgrade wasn't enough excitement for Greytok, early in the project he married his girlfriend Kelly Gray, who's the secretary for golf course maintenance department.

"Without her support and understanding, life would be a lot tougher," Greytok says.

Pioppi is a free-lance writer from Middletown, Conn.



Designs on Golf

- ARCHITECTURE

Dear Dr. Geoff:

A green committee member I work for calls me at home, usually after 9 p.m. Typically, these calls include his latest vision for our proposed third green renovation. Last night, he phoned to say he found the perfect color to use when we repaint our ball washers. I purchased caller ID at \$7.95 a month, but it turns out his number doesn't come up on the screen. Is it normal to resent these calls to the point that my blood is boiling with anger? Sincerely,

Super-irritated in Arizona

Dear Super-irritated:

Yes, it is completely normal and healthy to feel the way you do, but let's find a better way to channel your energy. Getting caller ID was a prudent move. I would recommend that you upgrade to a simple block feature forcing Mr. Committeeman to show his number by dialing *82. If he doesn't identify his number, the call won't get through and you'll get your sleep.

Dear Dr. Geoff:

I'm a world-famous, award-winning architect and a friend to presidents — well, at least USGA presidents. Some people think that I charge too much (\$1.2 million fee). And others say that I don't put in enough time on-site at my projects (four visits and I'm bored). What is wrong with the way I work? Aren't golfers today more interested in dropping my name and telling their friends how much we spent to build The Glory at Vanity Ranch? *Sincerely,*

Confused in Plaid

Dear Confused in Plaid:

Yes, the American way is to place an emphasis on the outward appearances and financial burdens that come with wealth and egotism. If you're doing what your clients want (that is, overcharging and overspending to build golf courses), more power to you. But remember, this will be your legacy. When baby-boomers are old, cranky and frugal, you may be the one they blame. Will you be comforted by your millions?

Dear Dr. Geoff:

I'm a semiretired superintendent who's now a

Dear Dr. Geoff: We Need Your Advice

BY GEOFF SHACKELFORD



THE NASCAR LOOK
MAY WORK FOR
A PIT CREW CHIEF
AT DAYTONA,
BUT I'M NOT SURE
HOW IT WILL FLY
IN ATLANTA

well-paid, universally beloved consultant. My question is fashion-related. At the GCSAA show, I have been known to wear a golf shirt with all of my corporate affiliations stitched on my shirts. Is there a maximum logo number, if exceeded, that violates any fashion laws? Sincerely,

Fashion Weary on the Road

Dear Fashion Weary on the Road:

The NASCAR look may work for a pit crew chief at Daytona, but I'm not sure how it will fly in Atlanta. As for a maximum, Gary McCord says that any PGA Tour player wearing more than six logos is in violation of good-taste edicts. For superintendents, let's raise the bar and establish a maximum of three.

Dear Dr. Geoff:

I feel isolated from the golfers at the course where I work. I rarely feel like stopping to chat with them because they share their ridiculously self-involved complaints about modern conditions, depressing me about the state of the world. Do you have any suggestions for creating better bonding situations with these golfers so I can have some hope for society? Sincerely,

Blue-keeper in Kentucky

Dear Blue-keeper:

Get a dog and name the hound after a popular (but definitely dead) golfer from your course. A good dog will intervene with most golfers, but they are likely to want to pet your dog and may even start seeing you as a fellow human-being. Conversations will shift to meaningless banter about the dog, which will foster empty discussions between you and your fellow golfers.

E-mail your advice questions to Geoff Shackelford at geoffshac@aol.com

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Callintne Specialists

Researchers see most companies refining herbicide formulations to meet a changing market that relies on targeted applications rather than broad-spectrum efficacy

BY FRANK H. ANDORKA JR., MANAGING EDITOR

ruce Branham, associate professor of turfgrass science at the University of Illinois, wonders what will spur the next revolutionary herbicide chemistry. It's not that he believes the major chemical companies aren't working on fresh ideas.

It's that the older products have controlled most weeds, so it will be difficult to dislodge the old standbys with new chemistries. "We can control almost every weed problem with existing chemicals," Branham says.

But challenges still remain for superintendents. According to researchers, environmental regulations are restricting more broad-spectrum herbicides than ever before.

As a result, manufacturers and marketers are pulling back some of their support of these chemistries in favor of chemicals designed to battle specific weeds. Companies are also starting to combine herbicides with other products to increase their effectiveness.

All of this appears to be good for the environment, but at least one expert questions whether the move away from broadspectrum herbicides will actually reduce the products' environmental impact.

Broad-spectrum conundrum

David Gardner, assistant professor of turfgrass science at The Ohio State University, says the move away from creating new broad-spectrum herbicides started a decade ago.

"We haven't seen any significant additions to our broad-spectrum herbicide controls for a long time," Gardner says. "It's still the same old six that we've had for years."

That poses a problem when the EPA calls on chemical manufacturers to review information on those chemistries, Gardner says. Although herbicides are the least vulnerable chemistries to be removed from the market (fungicides and insecticides come under far more scrutiny), Gardner says the removal of just one formulation from the market would be a huge loss. "When you start comparing the loss of one broad-spectrum herbicide on a percentage basis, it works out to something like a 17-percent loss of the total market," Gardner says.

John Stier, assistant professor of horticulture at the University of Wisconsin, says more manufacturers are backing away from supporting broad-spectrum products. The costs of reregistering them with the EPA aren't offset by the potential profits.

"Since the Food Quality Protection Act of 1996 (FQPA), the EPA has to review all existing chemistries," Stier says. "They're putting the traditional chemistries under the microscope and evaluating them under tough standards. That makes it difficult for companies to justify the extra expense of reregistering them."

Branham says some companies are working on alternative formulations in anticipation that they may lose some current chemistries in the future, but the replacements aren't likely to be quite as effective.

"You'll have some similar products crop up, but you won't necessarily have the same efficacy," Branham says. "We're pretty fortunate that the losses so far haven't had a huge impact on the industry — yet."

Stier also adds that if broad-spectrum herbicides are pulled off the market, there aren't clear alternatives for turf managers.

"You're going to see an increased market for alternative products that aren't as closely regulated as the chemicals, so we're not sure how well they actually work," Stier says. "You have to wonder how much progress we're actually making."

Branham adds that new product launches have slowed to a trickle largely because the market is well-covered.

Specialty herbicides and combination products

Considering the costs of bringing new products to market, companies may shy away from creating new broad-spectrum controls, Stier says

"They're turning to other alternatives," he adds. "One of those alternatives is creating weed-specific herbicides and combining other products with them."

Gardner says he expects more companies to combine existing products and form new chemistries that supplement each other's strengths, either by destroying a wider variety of weeds or by enhancing an ability to kill one class of weeds. Companies are also combining herbicides with other chemicals such as surfactants, which he says help the herbicides become more fast-acting and more effective.

Branham says he has also seen a trend toward manufacturers tweaking chemistries to reduce their volatility and making them more effective.

"I've seen some efforts to improve specific herbicides under specific conditions," Branham says. "One herbicide in particular is trying to reduce the potential for volatility you get from some of the liquid formulations by developing one that uses a microencapsulation technique to



Companies are moving to create herbicides to kill specific weeds like dallisgrass.

give superintendents more consistent results and better activity over the long haul."

Is this the right way to go?

Though Stier agrees that reduction in active ingredient rates of herbicides is a good idea in general, he wonders whether it can be universally endorsed for all chemicals.

"This has to be looked at on almost a case-by-case basis," Stier says. "In the past, we could eliminate the weed of interest and also other weeds we didn't know we had with a broad-spectrum herbicide.

"With specific herbicides, superintendents have to make sure they properly identify the weeds they have," Stier adds. "As a result, we may have to make multiple applications, which may actually increase the amount of pesticides used."

Stiers adds that a move away from broad-spectrum herbicides may cost more in time and labor to apply the specific products than to use a broad-spectrum product.

"Reducing the active ingredient in general is a good thing for the environment, but it complicates the job of the superintendent," Stier says. "Instead of spraying every three to four weeks, you have to go out there and spray every five to seven days. Since the public perception is that all pesticides are equally bad, it's going to take an educational push to make sure they understand we're continuing to be safe even though we're spraying more often."



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A New Definition

'Organic' golf turf management doesn't have to exclude synthetic materials

BY ELIOT C. ROBERTS

rganic golf turf management, like organic gardening, usually assumes the use of chemical fertilizers and pesticides to be inappropriate and even detrimental to the soil and environment. On the other hand, use of natural substances, whether they contain carbon (criterion for classification as organic) or not are beneficial to soil and plants to the degree that synthetic pesticides are not necessary.

Plant growth without use of pesticides is feasible for plants under soil and climatic conditions that are favorable for their healthy maintenance; for plants that have a high degree of insect and disease resistance and vigorous growth habit by virtue of genetic make-up; and for plants when population thresholds of damaging insects and pathogenic fungi are low. However, plants often become so insect- and disease-infected and weedy that the appropriate pesticide is required to maintain their high quality.

Use of chemical fertilizers and pesticides, according to rates, timing and methods resulting from commercial and Agricultural Experiment Station research, have proven effective and well within acceptable levels of risk to the applicators, soil and environment. Thus, much of the concern for the use of these materials is overstated.

However, there is another side to the coin. Evidence exists that overuse of fertilizers and pesticides is common practice. In these situations, soils and the environment may be exposed to concentrations sufficiently high to become polluted. Since it is the dose that makes the poison, applicators may become overexposed. This is not a function of the chemical compound but of improper use.

New concepts of integrated pest management (IPM) are designed to bring about reductions in the use of materials that have the potential for overuse and thus environmental pollution. This can best be accomplished by a sound knowledge of how plant and soil systems work, including relationships with beneficial and detrimental micro- and macro-organisms.

In fact, a new definition of "organic" golf turf management that places emphasis on the activity of these organisms is overdue. It is this activity that makes a soil dynamic, highly productive and conducive to the growth of healthy



plants. These organisms respond favorably to the use of natural materials, but they are also enhanced by the proper recommended use of synthetic materials. The new definition of "organic" golf turf management includes three criteria important in turf maintenance:

First — "Organic" golf turf management is concerned with a complete maintenance program that includes mowing, grooming, water-

ing, core cultivation, fertilizing, liming and use of soil conditioners and pesticides. All these practices influence the beneficial activity of soil macro- and micro-organisms and are all essential for the production of high quality turf.

Second — "Organic" golf turf management places emphasis on the application of organic (containing carbon) products, either natural or synthetic, that are biodegradable (provide a source of carbon for nonphotosynthetic soil organisms.) These may be fertilizers that release nutrients slowly. They may be bioactivators, biostimulants, enzymes or growth regulators. They may be surfactants or pesticides. In any event, they possess active and decomposition properties that promote turfgrass growth.

Third — "Organic" golf turf management recognizes the value of natural or synthetic inorganic (not containing carbon) products. Some of these breakdown slowly and release nutrients over a period of time. Many inorganic products contain nutrients that are readily available. These are recommended for use in small quantities applied frequently.

The bottom line: "Organic" golf turf management is concerned with the application of all of the following products in ways that promote both fine turf and all of the living organisms in the root zone of 1,000 square feet of this turf: natural organic fertilizers; synthetic organic fertilizers; dry mineral fertilizers; liquid fertilizers; chelated micronutrients; bioactivators; humates; biostimulants; enzymes and growth regulators; mixtures and formulations of the above; surfactants; oxygen enriched irrigation water; soil conditioners; limestone; and pesticides.

Roberts, director of Rosehall Associates in Sparta, Tenn., was the executive director of the the Lawn Institute from 1982-1992. He has more than 40 years of experience in turfgrass.

Tips

- Core Aerification

Superintendents from around the country explain how to do it quickly, cleanly and without much complaining from golfers

BY FRANK H. ANDORKA JR.

Managing Editor

erification is one of the most difficult tasks you have to complete each year. You know you have to do it to keep greens healthy, but you dread having to explain the process and its necessity to golfers. Besides, it means extra work for you and your crew that has to be shoehorned into an already packed schedule.

"There's this misperception out there among golfers that superintendents love to aerify, but we hate it, too," says Charles Hadwick, superintendent at the Country Club of Lincoln (Neb.). "It's a lot of extra work, but it has to be done."

Here are some tips from superintendents around the country on how to get through this painful process as quickly and cleanly as possible.

Use every opportunity to communicate with golfers before starting

Rick Tatum, superintendent at Grey Oaks GC in Naples, Fla., doesn't feel golfers will understand the importance of aerification even if superintendents take the time to explain it to them — but he still thinks you ought to try.

"Aerification is a necessary evil, and you have to find unusual ways to explain it to golfers," Tatum says. "I like using analogies that my members can relate to."

Tatum says one of his favorites is to compare what aerification does for turf to what vacations do for some rock stars take after long concert tours.

"After weeks and weeks of hard work, rock stars need to recover," Tatum says.

"Turf is the same way, and aerification allows it to do that."

Don't limit your attempts to communicate to one forum, says Richard Rhodes, certified superintendent of Skyland GC in Hinckley, Ohio. The more avenues you use to get your message out, the more likely the message will sink in.

"Use your Web site, newsletter or whatever other means you have to communicate with your members to tell them about the importance of aerification," Rhodes says. "Explain to them their greens won't be much to putt on without aerification. That's how you should start their education."

■ Be flexible about schedules

Superintendents shouldn't set rigid schedules about aerification because it will only get them into trouble, Hadwick says.

"You want to do it on a regular basis, but you can't really say that you're going to do it every second week of the month come hell or high water," Hadwick says. "You have to work with the golf professional to make sure your schedule matches with special tournaments or any promotions he or she has."

Weather also plays a huge role in determining ideal aerification times, so superintendents shouldn't lock themselves too tightly into a preset schedule, Rhodes says. He recommends waiting until the sun is shining to start.

For an 18-hole golf course, Tatum and Rhodes recommend closing nine holes at a time to aerify. Rhodes says he usually does his aerification over a two-day period.

Don't be scared to dig deep

Hadwick says aerification will inevitably anger golfers, so superintendents might as dig up as much soil as possible when they do it. The more soil you bring up when you aerify, the healthier the greens will be in the long run.

"We're going to make the golfers mad, so we might as well make them as mad as possible," Hadwick says, laughing. "It's a disruptive process, but

Continued on page 90

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G O L F



Continued from page 89 the golfers will like the results. I use as large tines as possible because I believe they do the most good."

Not everyone agrees with Hadwick's assessment. Mark Claburn, superintendent at The Golf Club at Bradshaw Farm in Woodstock, Ga., says he uses three-eighth inch tines every three weeks.

"When you use the smaller tines, holes aren't a problem," Claburn says. "I haven't had a complaint about aerification in three years."

Eliminate plugs immediately

Whether you blow the cores off the turf surface or remove them with a core harvester, the process should be done as soon as you're done aerifying. Claburn opts for the blowing-off method, whereas Tatum harvests his with a machine.

Tatum recommends that superintendents leave the holes open for 24 hours, but they should irrigate the area to prevent it from drying out.

"You can burn out the grass pretty quickly if you don't watch your P's and Q's with newly aerified areas," Tatum says. "Putting down enough water will ensure quicker recovery, which means fewer complaints."

■ Topdress as soon as possible

Practices vary, but there is one thing superintendents agree on when it comes to aerification: Topdressing is essential to minimizing golfer complaints. Rhodes says the goal is to fill the holes up completely so they putt smoothly for the first group out the next day.

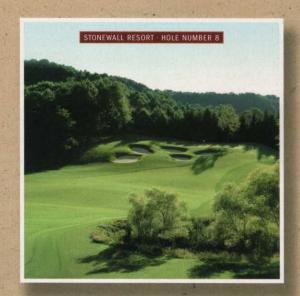
"You have to be careful about making sure they're filled completely," Rhodes says. "You have to go out there yourself and look at them to make sure they're filled properly. After you've done this for a while, you'll be able to tell by sight."

Some superintendents prefer a light topdressing program to fill the holes, but Tatum says he prefers to put down the heaviest application he can and then drag the green with a steel drag mat. Then he comes back in five to six days to topdress again.

"The focus is to fill all the holes — period," Tatum says. "That will flatten out the surface more quickly."

No matter what program you decide to use at your course, Hadwick says superintendents shouldn't hurry the process in response to golfer complaints.

"There's nothing in a can and no magic that you can use to relieve compaction on your greens," Hadwick says. "Take your time and do the job right. That's the best way to make sure your aerification goes smoothly."





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