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Most Superintendents 'Get It' When It Comes to Watering Wisely

Damned if you do, damned if you don't. A no-win situation. Stuck in the middle. A Catch-22.

You can cite a cornucopia of cliches to describe how golf course superintendents feel when it comes to managing their irrigation programs. They strive to find a balance between keeping golfers happy by providing well-watered turf and conserving a dwindling natural resource in the process.

Most superintendents are doing their best to be responsible water managers, according to a recent *Golfdom* study. In an online poll of 380 superintendents, we asked them: Are you managing water use as efficiently as possible? Twenty-five percent of superintendents answered, "Yes, our course is golden brown in some areas." Sixty-five percent answered, "Somewhat; we're trying to find the right balance." Nine percent answered, "No, we're watering away to attain turf as thick and green as possible."

Irrigation company representatives believe most superintendents "get it" when it comes to watering wisely.

Jeff Kiewel, national sales manager for Glendora, Calif.-based Rain Bird Corp.'s Golf Division, says superintendents "are 10 years ahead" of other turf managers in the green industry when it comes to water management. They have to be, he adds.

"If you're managing 125 acres and you have one acre that's in bad shape, you can get fired," Kiewel says.

Jon Truttman, national sales manager-market development for San Marcos, Calif.-based Hunter Industries, says money has motivated more superintendents to irrigate wisely.

"The economics associated with water management have gotten superintendents' attention," Truttman says. "It's getting more expensive to irrigate."

Kiewel expects more government regulators, such as the Environmental Protection Agency, to pay closer attention to water use on golf courses in the next few years. Reporting requirements could be on the horizon, he says. Obviously, this would cause superintendents to be even more vigilant about water use.

"This is a good thing," Kiewel adds, noting that measurements can help prove that golf courses are stewards of the environment when it comes to irrigation.

But don't count on Big Brother ever going away, says Warren Gorowitz, the national water management product sales manager for Phoenix-based Ewing Irrigation and Golf Products. While superintendents "are some of the best water managers out there," they will be scrutinized continually, he says.

— Larry Aylward

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Irrigation and Golf Products, the exclusive distributor of Hunter Golf products in 19 states, says irrigation companies are simply responding to a crisis at hand.

"When you're dealing with a natural resource that's being consumed faster than it's being replenished, you have to react," he says.

We're talking "precise"

How are irrigation companies reacting? With their heads.

You can bet there's a lot of brainstorming going on in any given irrigation company's research and development laboratory. Ask
irrigation
company

representatives what they strive for in their research and development efforts, and they start throwing around words like "precision" and "optimum." You get the impression the companies are aiming for perfection.

"More precise applications of water," says Rick Hill, John Deere's product manager for golf irrigation, when asked what's needed. Then he adds, "Sprinklers that are more optimum in performance for better distribution."

"Uniformity of application" is a buzz phrase on golf courses these days when talk involves irrigation. Steve Snow, Toro's director of golf renovation and sales, says the biggest improvements in irrigation efficiency are in sprinklers that feature improved uniformity of application. The newer and technologically advanced sprinklers don't need to operate for as long as older and less-efficient sprinklers. Hence, water waste is reduced drastically.

"A sprinkler that has a 70-percent uniformity needs to run 15 percent longer than a sprinkler that has a 90-percent uniformity," Snow points out.

Compiled over a year, sprinklers with 90-percent uniformity could save a golf course millions of gallons of water. "And when you don't put out as much water, you don't use as much power to run your pump station," Snow adds.

Lonn says Toro has spent much time and money to improve uniformity of application. He notes that Toro aims to achieve uniformity similar to rainfall. Snow says the engineering technology to develop equipment to improve uniformity, such as plastic molds for nozzles, has come a long way the past few years.

"[Before], you would carve out different shapes for nozzles, and they were pretty rudimentary, such as squares, circles and rectangles," Snow says. "That technology has really moved forward."

Lonn says another trend related to uniformity is that golf courses are using more sprinklers to achieve more precision watering. "The more sprinklers you have, the more control you have over water and how water gets placed," he adds.

Regarding control, Jeff Kiewel, national sales manager for Rain Bird Corp.'s Golf Division, says the company is spending more on controller

technology because it's the area of the irrigation system where superintendents need the best technology to solve their watering challenges.

Jon Truttman, national sales manager-market development for Hunter Industries, says superintendents need controllers that provide them the ability to make "finite" adjustments. "A golf course has different microclimates and requires different irrigation scheduling throughout the property," he adds.

Hill says Deere's controllers were manufactured with evapotranspiration, water flow and water pressure in mind. The controllers make sure water is managed efficiently as soon as an irrigation system is turned on, he says.

Irrigation manufacturers have also improved trajectory on sprinklers so they can water into the wind, under trees and up hills more efficiently. Rain Bird recently introduced rotors addressing these issues.

Drip irrigation on difficult-to-water areas, such as bunker areas and steep slopes, is also being explored. In addition, manufacturers say increased sensor technology will help superintendents become smarter water managers.

"Being smarter means understanding what's happening 6 inches down in the root zone, not what you think is happening based on how turf appears on the surface," Kiewel says of sensor technology.

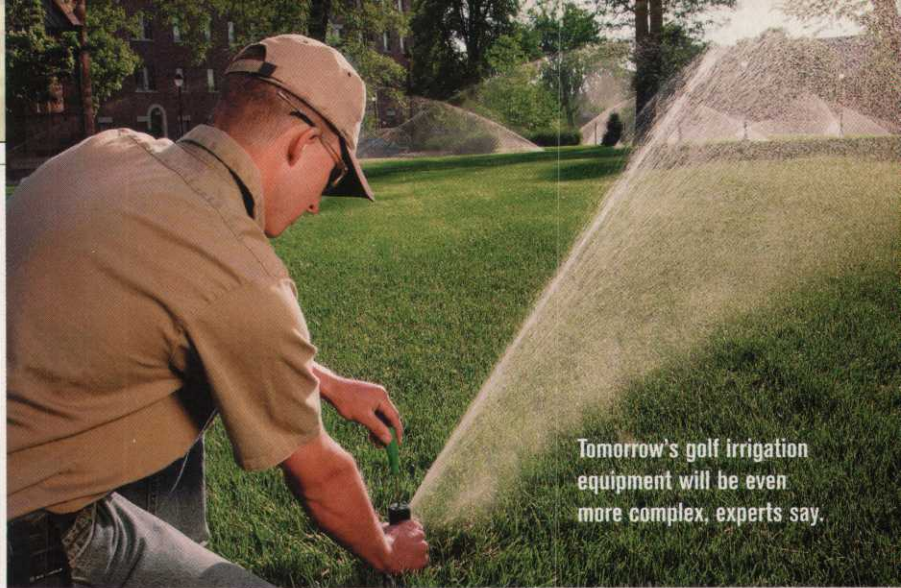
More challenges await irrigation manufacturers, Kiewel says. A future requirement could be an irrigation system that monitors the temperature and makeup of water and whether it needs to be treated. Kiewel also says future "smart" irrigation systems will have to know when to switch from freshwater to effluent irrigation because golf courses will be limited in the amount of freshwater they can apply.

Speaking of effluent, it's not the silver bullet that will allow golf courses to stop using freshwater completely, experts say. While effluent's use is growing, it's not without its own problems — it contains salt and heavy metals — and it can be expensive.

"Effluent isn't the be-all solution to water conservation," Gorowitz says.

Take 'em to school

Outside of technological advancements, irrigation companies are getting in the education



Tomorrow's golf irrigation equipment will be even more complex, experts say.

game to show they're serious about water conservation and to improve their public relations in the process.

Rain Bird has held five educational programs, each titled "The Intelligent Use of Water," since 2004. The programs were created "as a forum to further define the relationship between water conservation and landscape water use," according to Rain Bird. That includes the golf industry.

Why did Rain Bird decide to get into the education business? The answer is simple, says Barbara Booth, director of the company's Golf Division. "While products are near and dear to our hearts, products alone will not enable people to make intelligent choices when it comes to water uses and irrigation systems," she says.

The summits also help Rain Bird in its quest to help golf courses in their public relations efforts to convince the public that they promote watering wisely, Kiewel says.

Toro Golf Irrigation has also delved into the education segment. It held its first WaterSmart "Success Without Excess" Symposium last summer at its Riverside, Calif., facility. Toro organized the event to share information among the leaders and stakeholders in water conservation.

David Angier, marketing manager for Toro Irrigation, says the event achieved its goal. Angier says he sat next to a woman during the event who admitted she knew little about how the golf industry operated and assumed that courses used water at will to provide lush conditions. But after she witnessed a presentation by Sandy Clark, the certified superintendent at Barona Creek Golf Club in San Diego who talked about how golf courses are "very con-

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"Everybody is looking for an advantage. I don't see that changing."



JEFF KIEWEL
RAIN BIRD

Wanted: Watertight Technology



Irrigation equipment is tested repeatedly at Toro's Riverside, Calif., facility, home of its irrigation division.

tain amount of water needs to be placed on a square meter of a golf course relative to its microenvironment, Breningmeyer says.

New technology could come from related industries and be adapted to the golf industry, Hill points out. "There will be people from other fields that come up with ideas, and it will be up to us to look at those ideas and say, 'That's something we can use in our market,'" he adds.

On the horizon

One thing is for sure: The cost of water will continue to escalate, Angier says. At the same time, water availability and water quality will decrease. And because of the freshwater shortage, Angier says more golf courses need to irrigate with more effluent or water from other sources, further challenging irrigation manufacturers to invent relevant equipment.

Breningmeyer expects John Deere to be on the forefront of technology. He says Deere wants to adopt some of the successful irrigation programs the company has created in agriculture, such as GreenStar, a program designed to help farmers with resource management. A similar program could benefit superintendents in water management.

"That said, we're doing specific things for the golf industry in terms of product development and innovation," Breningmeyer adds.

Kiewel says golf has a healthy future. "And tomorrow's golf irrigation will be even more complex," he adds.

Truttman agrees. "I think we're ready for some groundbreaking new technology," he says.

If it sounds like the golf irrigation segment is about to become more competitive, it probably is. While all of the manufacturers are on the same team when it comes to water conservation, they're still competitors when it comes to outdoing each other with water-efficient products.

"Everybody is looking for an advantage," says Kiewel, citing his company's "fierce" rivalry with Toro. "I don't see that changing."

While Breningmeyer realizes that John Deere Golf Irrigation is a relatively new player in the market, he believes there's "a hunger" for more golf industry irrigation offerings. "Competition breeds innovation," he adds. "The more competition, the better the customer is served." ■

"I think we're ready for some groundbreaking new technology."



JON TRUTTMAN
HUNTER INDUSTRIES

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If you're looking for more stories on irrigation, look no more. Just go to *Golfdom's* Web site – www.golfdom.com – and type "irrigation golfdom" in the search engine component in the left-hand corner of the opening page. More stories on the subject – from syringing to saving water – will appear.

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scious" in regard to the water they use, the woman changed her views.

"I was happy to hear her say, 'I had no idea the golf industry was doing so much and cared about this issue,'" Angier says.

Breningmeyer, aware that the golf industry is an easy target for water conservationists who know little about how the industry operates, says John Deere will join the education game when the time is right.

"We'll do it when we have something important to say that covers a need that hasn't been met," he says. "But I applaud Toro and Rain Bird for sharing their information."

Patents pending

So how precise can irrigation equipment get? Will manufacturers eventually hit a wall in their pursuit of new technology?

Lonn says he has heard people say that the patent office should close its doors because everything has been invented. But he doesn't agree. He says there will always be opportunities to make equipment more precise in golf course irrigation. Lonn also points out that "resource conservation is the mother of all invention," and manufacturers will invest in improvements as long as money is available. "It won't stop as long as the business stays healthy and as long as people don't turn off the water," he adds.

Breningmeyer says technology will arise as needs arise in the marketplace. "I don't think there's a finite end to innovation," he says. "Market demand spawns innovation in ways we didn't dream about."

Future technology could dictate that a cer-

the straight scoop on bentgrass



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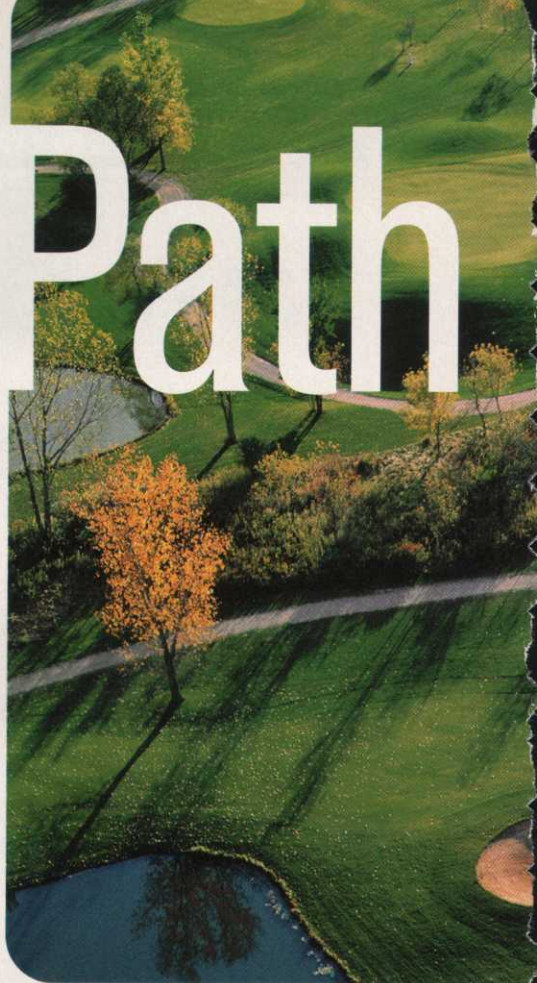
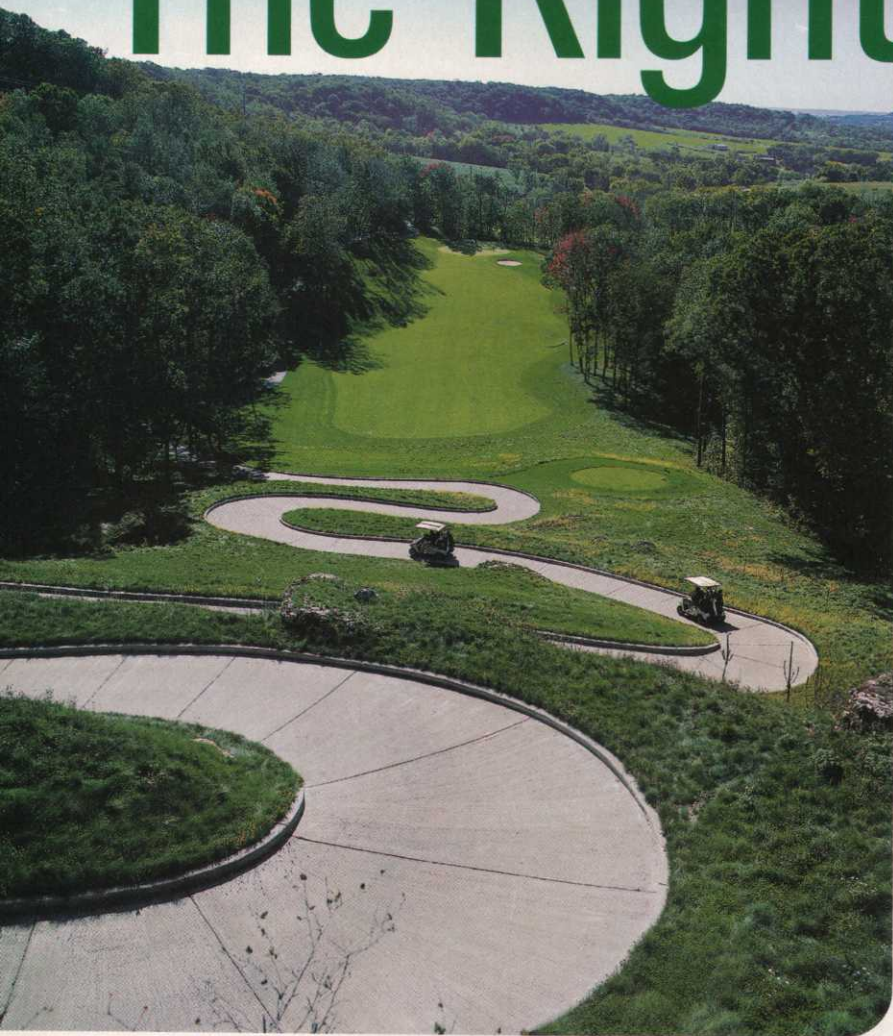
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The Right Path



While an architectural challenge, properly planned cart paths are beneficial to a golf course's design and operation

BY BRUCE ALLAR

When Houston-based Benchmark Golf and an Indiana ownership group carried out a \$4.6-million restoration of a Donald Ross design in French Lick, they consulted the famed architect's original plans for the course, which opened at a popular resort in the hills of southern Indiana in 1917 and hosted the 1924 PGA Championship, won by Walter Hagen. One costly — and now essential — item was absent from the drawings: cart paths.

Golfers walked all 18 holes in the day of

Hagen and Ross, and that era's strategy of sitting tees close to greens to accommodate foot traffic led to problems when cart paths were installed later.

In some cases, the narrow asphalt ribbons superimposed on Ross' design were precariously close to greenside landing areas, says Greg French, vice president of golf operations for Benchmark, which will manage the facility. Golfers who parked there to hit their drives were in some serious danger from the approach shots from the group behind them.

"In many cases, they put the golfer in

PHOTOS BY: MIKE KLEMM



grave danger,” French says. “The liability issue was a huge driver of changing the cart paths.”

The monetary factor — a reliance on golf cars’ rental fees and the hope that they’ll also speed play to pave the way for more paid rounds — makes them what several sources for this story call a “necessary evil” in course design and maintenance. Architects despise them for marring the playing landscape, but superintendents can derive some benefits from these surfaces if they’re properly planned and installed.

French says the approximately \$275,000 cart-path upgrade at the Ross Course at the French Lick Resort Casino, which opened for play last September, replaced broken-up 4.5-foot-wide asphalt with concrete that is 7-foot wide beside fairways and up to 12-foot wide in some areas near tees and greens.

Curbing was installed and concrete broadened in places where players park to offset that mysterious human tendency to pull into and damage the grass. (Why do golfers imagine that some phantom

group will play through while they’re putting or teeing off?) More curbing and the wider paths also reduce the need for ropes and stakes, which are both unsightly and a time-eater for mowing crews.

At the Ross Course, curbing also was built up on pathways alongside fairways on certain hills to funnel drainage into preferred collection areas. An enlarged irrigation pond equipped with a “floating intake” system pumps the best water from the top 12 inches of the pond, then it recycles the high-grade runoff.

On three holes, the restoration team decided to forgo paths from a point 30 yards to 50 yards from the tee. The concrete ends in an area where golfers choose from a few options and fan out in different directions onto the bermudagrass. They’re also offered different routes back onto the paths as they exit near the putting surface. Rapid runoff from the inclines on these holes makes golf car traffic little threat to rip up turf.

“The other reason was the visual,”

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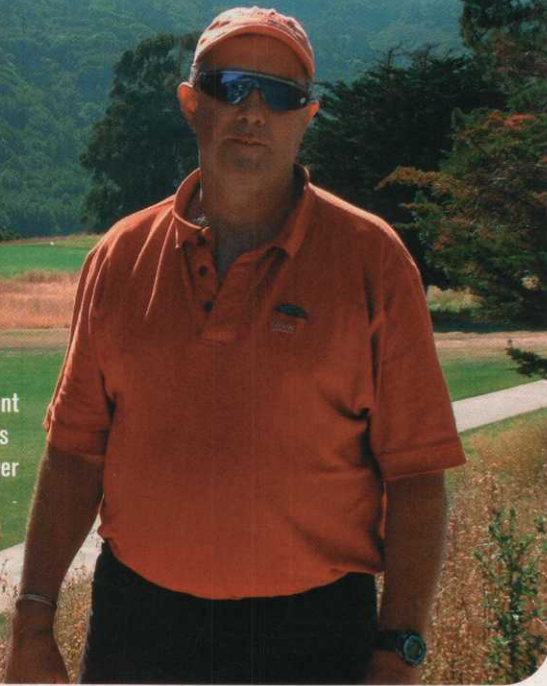
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The Right Path

Tim Powers, certified superintendent of Crystal Springs Golf Course, says concrete costs more but lasts longer when it comes to cart paths.



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French says. "We wanted you to stand up there on the tee and see less cart path."

Vistas on the course have been dramatically improved as the restoration team added back 35 bunkers, many of them of the large fairway variety, and returned greens to the more-expansive squared look originally conceived by Ross.

Others in the industry are also finding better ways to build and hide cart paths. Architect Bobby Weed is of the "necessary evil" school regarding these hole-side highways, and his eponymous design firm has two rules on the subject: Keep them out of play and keep them out of sight.

"As simple as those two criteria are, that's quite a challenge," Weed says. "If you have to have them, it's best not to put them off (when designing and build-

ing). It's best to shape them in from the beginning. You need to cut them in when you're doing feature shaping."

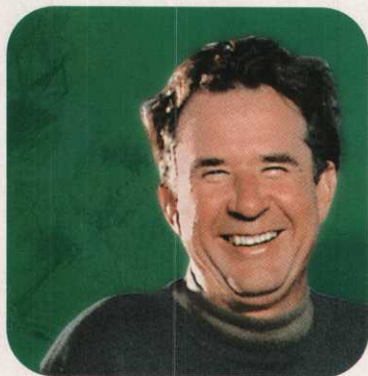
This makes it easier to hide the paths from player sightlines. Balancing nearness to tees and greens — which speeds play — with longer walks, which take the paths more out of sight and out of play, is a difficult proposition in the design phase.

"There is no rule of thumb as to how far they must be from greens because there are so many other factors — bunkers, grass types and slope," says Weed, who notes that he uses a bit of intuition in such cases. "It's a feel thing and a field thing."

"The big thing is getting the path out of sight for the first quarter or third of a hole," says Louisville, Ky.-based archi-

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Architect Bobby Weed has two rules when it comes to designing cart paths: Keep them out of play and keep them out of sight.



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The Right Path

Architect Spencer Holt hopes alternative surfaces, particularly those that might be more porous and natural in their landscape, will become available for cart paths.

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Architect Spencer Holt. At his marquee course to date, the Cardinal Club in Simpsonville, Ky., Holt used high-grass areas and whatever tree coverage he could find during the routing of the links-style course to hide the concrete. He also made quick turns in the path after tee boxes so that a winding route could help hide the path from view.

"You have to think it out when you're creating the hole," he says.

Bruce Matthews points out a path paradox: Because most golfers miss shots to the right, paths on that side of the fairway will speed play, especially on path-only, weather-altered days. However, that same right-hand location means more balls will hit the paths, becoming damaged and bouncing wildly off-line.

"I'm not a fan of wall-to-wall cart paths," says the Michigan-based course architect. "I am a fan of using something other than asphalt or concrete."

While many are replacing less-durable asphalt with concrete, Matthews prefers a

product of crushed asphalt made from recycled road material. He mixes in a little oil and spreads it, creating a softer material that will not rebound balls so high into the air. Crushed granite also works on paths, Matthews says.

He also advises new course owners to delay path installation. Design holes with a best estimate of where they should go, he says, but initially put them in only from green to tee and wait to determine exact connecting routes.

"Golfers will dictate where they should go," he says.

In some cases, the grass will hold up well enough that paths won't be needed. Matthews points out that the \$200,000 or so saved by foregoing paths can pay for repair to a lot of damaged turf.

"It's still best to have a healthy turf out there and let the players scatter," he says.

Holt wishes some alternative surfaces, particularly those that might be more porous and natural in their landscape, will become available. Concrete is the most durable, but ground-

Expert Tips

The people at Club Car, the Augusta, Ga.-based manufacturer of golf cars and utility vehicles, know a thing or two about cart path design. Here's what the company's experts suggest when designing cart paths:

- ◆ Width of the path is the most important consideration. You want at least 7-foot paths, 8 feet is even better. But wider paths cost more money. Hence, a lot of courses build paths that are too narrow, which leads to problems: Drivers and passengers get clipped by tree limbs, and beverage cars don't have room to pass a parked golf car.
- ◆ Turnoffs that provide space for golf cars to pull off the main path — often found at tee boxes and landing areas — can save turf and allow beverage units to pass.
- ◆ Curbs should be rounded, not squared off at the top. This is to make it easier for the golf car to go over the curb without damaging the suspension and underbody.
- ◆ Asphalt or smooth cement is the best material to use. Rough cement or crushed shells, which you see on some coastal courses, cause tires to wear excessively.
- ◆ Turnarounds should be large enough to accommodate the widest turning radiuses of golf cars and eliminate cars having to back up in the turnaround.
- ◆ Switchbacks should be built into steep grades to help a golf car climb hills.
- ◆ Use signs to warn players of steep grades, sharp curves, etc.