



# SUPER SUSTAINABILITY

## Golf course managers IMPLEMENT and EXPAND conservation practices

BY T.R. MASSEY

In golf, like the rest of American society, green is worth more green than it used to be. Because of higher oil costs and a burgeoning environmental awareness, recycling programs and conservation have become more popular.

"We've been doing it for years," says Chris Gray, director of golf course operations at Marvel Golf Club in Benton, Ky., and the National Public and Overall winner of the 2007 GCSAA/Golf Digest Environmental Leaders in Golf Award. "I hate the perception that we're Darth Vader of the Evil Empire."

Gray, who also won the environmental award in 2003, goes beyond the standard separation of cans, plastic and paper. When he started at the club two and a half years ago, he began with an energy audit.

"Fluorescent bulbs were the easy part," he says.

Gray's maintenance building is relatively small, so he sought a way to heat it more efficiently during the winter. "Where's our used oil?" he asked staff. The answer was that it was in 55-gallon drums the course paid to have taken it away. Gray thought, "Why not get a drip burner and use the oil to heat our maintenance facility?"

"So we set up a little oil burner with a drip system, and it keeps everything

heated," he says. "A blower fan pushes the heat through the duct system. The cost was minimal. It saves money, and we dealt with the problem on our own."

During Gray's first year at Marvel, he saved about \$1,400 in heating costs and didn't have to pay to have the used oil hauled off.

Additionally, Gray returns all grass clippings to the canopy of the turf in his fairways and tees.

"When you take away the clippings, you take away the nitrogen," he says. "We saved 20 to 25 percent on nitrogen costs since we started. Also, returning clippings back to the tees and fairways saved manpower. It sped up the time to do the job. Those hours spent doing that went to the bottom line."

Also, Gray found out about using vegetable oil to run his diesel-powered equipment by watching a TV show called "Myth-Busters." The concept is that vegetable oil, properly heated to 160 to 170 degrees, atomizes just like diesel.

So Gray started with one piece of machinery (a mower) that was beyond its warranty period (changing the system can void the warranty) and installed a separate tank for the used vegetable oil from the clubhouse restaurant.

"You heat the oil, and when it gets to the

Turfgrass, a fertilizer and chemical company, recycles pesticide containers at Treetops Resort in Gaylord, Mich. Photo: Turfgrass



injectors, it will run just like diesel," he says, adding that he filters the oil before using it. "You use a Y-connector between the tanks. It took some tinkering, but once the oil is heated, you use a separate line that goes into the diesel engine. You start it with regular petroleum diesel, let it heat up and switch over to the other oil tank. Then when you shut it off, you switch back to the petroleum fuel for about five minutes so it cleans all the impurities."

The used oil, a form of biodiesel, costs Gray 57 cents per gallon after filtration compared to \$3.25 for diesel. He also can buy new vegetable oil in bulk for 67 cents per gallon.

"It's a simplistic system," he says. "It can be hard to explain, though. All my equipment is older, well past any warranties. I know the system works."

Vegetable oil use has decreased Gray's diesel consumption 53 percent.

"We've saved about \$3,000 to \$4,000 in our fuel budget by using this system in a little more than a year," he says. "The more I add, the more I save."

There's a lot of equipment for sale that can be retrofitted for vegetable oil use, Gray says.

"There's really no down side, but there are things to be aware of," he says.

This type of creativity is much more important than doing things the standard way, Gray says.

"Everyone is so concerned with keeping the grass green, they don't think about how things are done and how to make it better," he says. "Change just a little bit, and you'll do a world of good. It confuses me to no end that people

don't do it."

Gray also harvests rain water to fill his irrigation pond rather than pumping it from the lake beside the course.

"We have a system of PVC pipes that go to lift stations, which empty into in my irrigation pond," he says. "Instead of pumping fresh water, which is much more of a precious commodity than it ever has been, we use rain water. This industry uses billions of gallons of fresh water. You're just waiting for an environmental group to go to the point of court of public opinion and say how much water we use."

Gray's conservation methods go farther than most, but he says it's going to be a necessity in the coming years.

"When people think recycling, they think cans, but I'm talking about water and energy," he says. "We have to get ahead of the curve because if it catches up to us, it's going to be bad. Ask any superintendent in the Atlanta area how they're doing with water. There's a reckoning coming. There's not one hard-core environmental agency that wouldn't love to have our head as a trophy for nailing us for water consumption. We have to be proactive. Water is the big issue for the next 10 years, and no one is listening. Last year was a wake-up call. It literally takes you turning on the faucet and having no water come out to understand what's happening."

Gray's next plan is to install a windmill, which he estimates will cost between \$5,000 and \$6,000. He believes it will provide enough electricity to run the clubhouse and earn a credit for what he puts back into the local energy grid.

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"It's time to elevate our game," he says. "What problems will we be facing in 10 years?"

**MORE THAN IT USED TO BE**

At the city-owned Saddle Rock Golf Course in

Aurora, Colo., Joe McCleary, who has been the superintendent since 1997 when the course opened, composts materials from the golf course and recycles as much as he can. The staff stores aluminum, plastic and glass in a single-stream

Dumpster and collects paper and cardboard from office waste.

"It's surprising how much we generate," he says.

Other conservation efforts at Saddle Rock include:

- Recycling waste oil, antifreeze, hydraulic oil and tires;
- Using compost from the metro sewage treatment district to topdress fairways; and
- Using recycled asphalt from the city street department to build cart paths.

McCleary also has been investigating biodiesel alternatives with the course's mechanic.

"In the past, we haven't had a steady supplier," he says. "Using biodiesel might happen in 2008 and definitely in the years ahead."

Five years ago, Scott Pulaski, golf course superintendent at the Treetops Resort in Gaylord, Mich., came up with an idea to recycle pesticide containers, which since has grown into a large operation. Now, Turfgrass, a fertilizer and chemical company based in Michigan, runs the operation, which is managed by Karen O'Dell, a former superintendent at Treetops.

"Anything that leaves our door, we'll take back in," she says. "We make it as simple as possible for the end user. We even take our competitors' products."

Turfgrass stores the containers in a used semi truck until the state has a grind date. About mid-September each year, a company called Triranse from St. Louis comes to Turfgrass' site to grind the 2.5-, 4- and 30-gallon containers. It also takes away 55-gallon plastic drums at no charge.

"There's no revenue, but from the environmental concern, we wanted to do it," O'Dell says.

In 2007, Turfgrass' program generated 6,550 pounds of ground material at one plant and 2,600 pounds at the other. In Michigan, a total of 50,475 pounds was generated.

**GREEN DEVELOPMENT AND MAINTENANCE**

Recycling is part of the overall sustainability concept many professionals embrace. Golf course architect Michael Hurdzan, Ph.D., an industry leader for environmental concerns, gives credit to environmentalists for the move toward recycling and conservation.

"If they hadn't have pointed this out, the golf course industry might not have moved at all, making us face the fact that we can do better,"



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At Marvel Golf Club, Chris Gray harvests rain water to fill the irrigation pond rather than pumping from the lake beside the course. Photo: Marvel Golf Club

he says. "What got me as involved in the environmental movement was hearing how bad golf courses are for the environment, and I knew it wasn't right. That's what spurred me to be active in the community. I knew people weren't getting the correct picture, and no one from our industry was stepping forward to publicize our thoughts.

"We're down to a much more rational, cooperative situation with environmentalists, and they're an enormous help," he adds. "But we started with, 'If you want to argue with facts, we can do that.'"

A perfect example of that cooperation is Widow's Walk Golf Course in Scituate, Mass., where the town wanted to build a golf course, but there were too many environmental problems to build it. On the degraded site, sand and gravel had been quarried for almost 50 years. There was a garbage dump next to the site, too.

"Trying to get a course permitted on the land was almost impossible," Hurdzan says. "So I asked the town to bring environmentalists on our team instead of fighting them. Let's go through site assessment and how to reuse land and improve it. How could they help us?"

The course became an environmental demonstration project, which included six California greens, six USGA greens and six sand greens to see if one was better than the others.

"There were no significant differences," Hurdzan says. "Why build an exotic green when you can build them from topsoil and get the same performance?"

The stumps that had been dumped there were chipped into sawdust and mixed with the soil to make compost, which was used to topdress the playing area. Additionally, recycled asphalt was used for the cart paths, and old carpet from the dump next door was used to build a sod-wall bunker.

Jeff Carlson, who was the superintendent on the Widow's Walk project and is now the superintendent at The Vineyard Golf Club in Martha's Vineyard, Mass., thought the carpet idea was crazy.

"That was 1996, and I recently spoke to the current superintendent, and it's still intact," Carlson says. "That's a good thing. Apparently, it's well received, and no one seems to know the difference between that and a regular bunker. They're going to do more."

When he left Widow's Walk, Carlson brought some of his environmental practices with him. The local government requires The Vineyard to be completely organic, so he can't use synthetic pesticides and fertilizers.

"I recycle greens clippings and plugs and don't add any product to it," he says. "I just keep turning it over. We use six-year-old topsoil as divot mix. It takes two or three years for it to break down into topsoil. It's terrific."

Carlson has a six-yard surplus of topsoil he intends to give away.

"Here on the island, that kind of stuff is rare, hard to find and very expensive," he says.

Carlson, who is the 2008 GCSAA/Golf Digest Environmental Leaders in Golf Award winner, says it's difficult to be completely organic, but new products coming into the market will help.

"The turfgrass industry doesn't have a guideline or definition of what organic is," he says. "There doesn't seem to be a good classification for organic pesticides, but it's coming."

To run an all-organic system, one has to have a membership that understands course conditions aren't always perfect, Carlson says.

"During the past six years, we've found the playing conditions are good," he says. "We focus on playability, not visual perfection. Not every blade of grass on every corner of the golf course is perfectly green." **GCI**

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