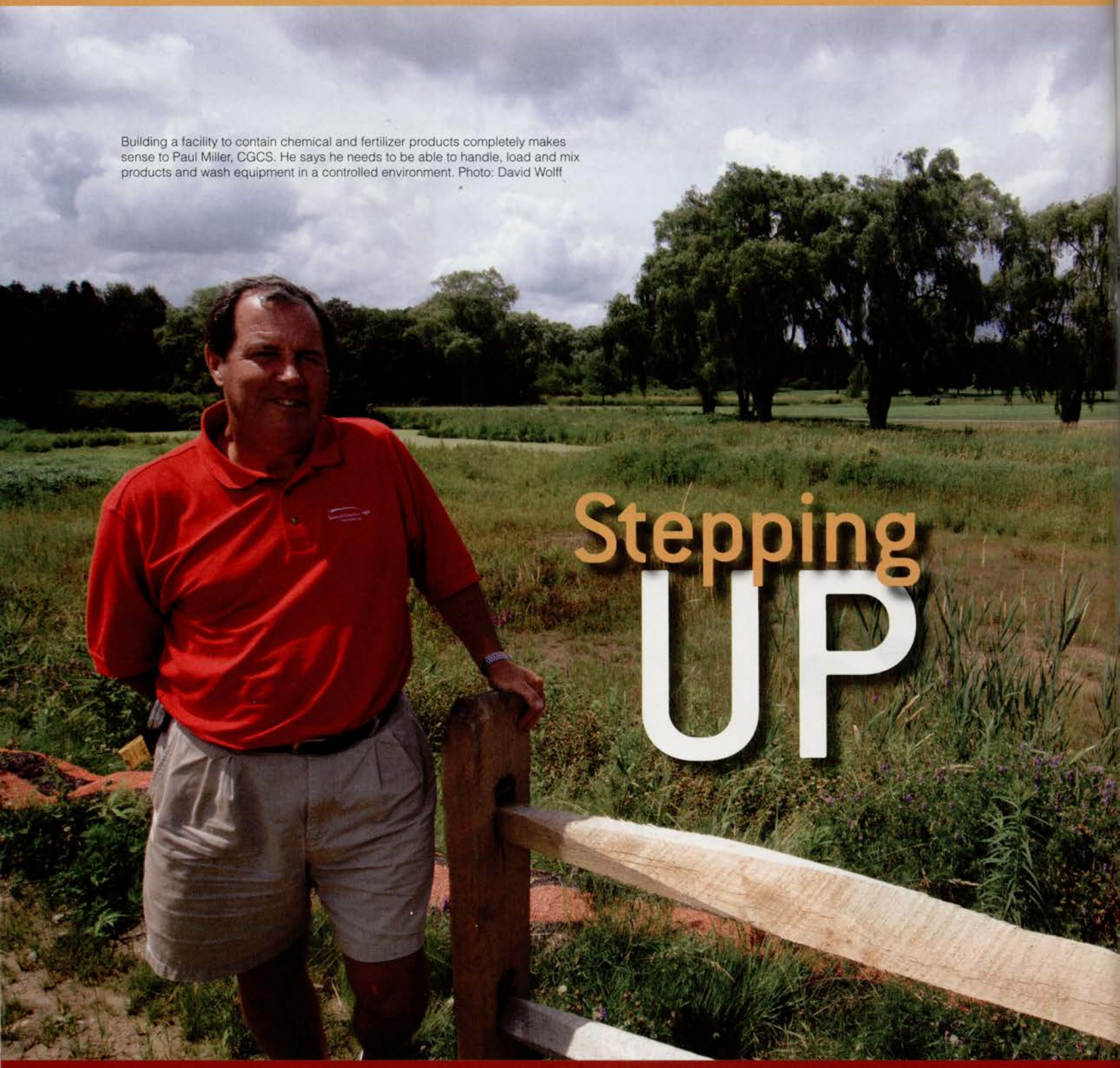

Building a facility to contain chemical and fertilizer products completely makes sense to Paul Miller, CGCS. He says he needs to be able to handle, load and mix products and wash equipment in a controlled environment. Photo: David Wolff

Stepping UP

NASHAWTUC COUNTRY CLUB TAKES PROTECTING THE ENVIRONMENT TO THE NEXT LEVEL

By David Wolff

There's been a lot of talk lately about reducing the nation's impact on the environment. And while some people make decisions to reduce their "carbon footprint" and use less energy, among other environmental practices, golf courses are improving their own environmental stewardship. Nashawtuc Country Club in Concord, Mass., is an example.

First, the club was honored by Audubon International as a Certified Audubon Cooperative Sanctuary, and secondly, it opened an environment management center.

The course is the 10th in Massachusetts and 638th worldwide to earn recognition through the Audubon Cooperative Sanctuary Program for golf courses, a program recognized and supported by the USGA, the PGA of America and other golf organizations that help protect the environment and preserve the natural heritage of the game of golf.

The 220-acre Nashawtuc Country Club, which is adjacent to the country's oldest Audubon Society chapter, and Paul Miller, CGCS, have taken a systematic approach to address environmental issues, says Kevin A. Fletcher, Ph.D., executive director of Audubon International.

"They've gone above and beyond what's required by law to protect the environment," Fletcher says. "The new facility is part of a culture at the club to work toward a positive impact on the environment."

The impetus for the environment management center, which is adjacent to the maintenance facility, came when Miller took a close look at the 100-year-old maintenance building, which was an open-air, wooden structure located directly above a wetland. He proposed an improvement project to the club's board of directors in February 2006. Additionally, club management decided it wanted to complete its Audubon International certification.

"Many clubs wash equipment in a place where water will drain into a low area," Miller says. "There are clippings treated with chemicals and fertilizer that are draining into areas that should be regulated. Massachusetts has no regulations on wash water, or rinsate, so, in essence, we were polluting. To coin a phrase I'm fond of, 'the past belongs to the future.' What we're doing now will influence future generations. Building a facility with full containment of chemical and fertilizer products makes sense. We have to be able to handle, load and mix products and wash equipment in a controlled environment."

EMC FEATURES

Miller chose an ESD closed-loop wash system for the environment management center. Because the system is self contained, there are no leaching or rinsate issues. The system controls everything that comes off equipment – grease, oil, grass, pesticides and fertilizer. The liquid is broken down by enzymes, while the clippings are filtered out and hauled to a mulch pile. Bioremediation is used to reclaim, treat and recycle the water.

The center includes a chemical storage room with a pitched floor and sump to recover anything that's spilled. Adjacent to the chemical storage room is a mix-and-load bay – also with a pitched floor and sump – for sprayers. There are a series of valves in the mix-and-load bay, so if there's a major rupture in a tank or line, all the chemicals can be recovered and stored in a 300-gallon tank. When checking nozzles and pressures, the valves ensure any rinsate flows into the ESD system in the next room.

The environmental management center, which is located in a high-and-dry area, is contoured away from the building so nothing can drain inside. A series of catch basins ties into a vortex chamber that ties into a headwall that disperses into the wetlands. The basins filter sediment to prevent material from draining into the wetlands. The basins and vortex are cleaned several times a year.

"We were on the front end of any environmental issues, and the town of Concord embraced the project," Miller says. "For Audubon certification, the assistant natural resources commissioner was part of the club's support group."

The building permit for the project needed 12 stamps of approval from various government agencies before construction could begin. The club selected Golf Structure Alternatives from Rye, N.H., to coordinate government agency approval and design the 115-feet-by-33-feet facility.

"The goal was to address environmental issues involved with the handling of chemicals and washing equipment," says Roger Mulloy president of Golf Structure Alternatives. "Golf needs to be at the forefront of environmental sensitivity. In the past, the industry hasn't been as proactive as it needed to be. Our company works with clubs to help them accomplish these goals."

While a project like this isn't inexpensive, there are cost savings for the club.

"For us to get a good price on quality products, we have to take advantage of preseason buying to

maximize discounts; and to accomplish that, we need appropriate storage," Miller says.

Choosing an accomplished architect such as Mulloy reaped other benefits.

"The tighter the specifications on the building, the more competitive the bidding," Miller says. "The building is fireproof and has cinderblock construction, contoured floors and a metal roof. The cost was $150 a square foot, or about $600,000. That might seem expensive, but in relationship to the cost of an environmental cleanup, it's not a lot of money."

ENVIRONMENTALLY SENSITIVE PROGRAMS

The new facility hasn't changed Miller's cultural practices because he's always tried to do what's best for the environment.

"Some of the products we use are expensive, but they pay off in other ways," Miller says. "For example, we're going to use a new product, Trinity, from BASF to control anthracnose. By research standards, it will give us 28-day control. As a result, we will be using two-thirds less product to control this disease.

"Almost all golf courses use plant protectants, and we want to be in line with organizations like Audubon and use the latest technology and a minimum amount of product to get acceptable results," he adds. "If I'm chasing a fungus rather than being proactive, I'm using 66 percent more product. I'm exposing more people and turf to more chemicals. As long as Audubon keeps that big-picture perspective and knows we're responsible users, we can work together. That's incredibly exciting."

Miller says many clubs don't pursue Audubon certification because of the requirements for storage, mixing and loading of products, as well as taking care of rinsate. However, Audubon doesn't require a facility like the one at Nashawtuc.

"We're all responsible enough to try to keep up with technology, but if my chemical budget is X,

Nashawtuc's environment management center features an ESD closed-loop wash system. Because the system is self contained, there are no leaching or rinsate issues. Photos: David Wolff

and in order to meet Audubon's environmental goals, we decide it should go to 1.5 X, I can use this in my favor when I negotiate the budget with the club," he says. "I remind them we're a sensitive property and there's technology that's better, but it will cost more money. In this case, Audubon is our support group.

"Plant health is so incredibly important to the success of our jobs and to protect the environment," Miller adds. "If we don't have to spray, we won't. If the plant is healthier, it will require fewer chemicals. If we can apply at a reduced rate, everyone wins."

Miller has soil and plant tissue tests conducted regularly, and he monitors the condition of the turf constantly. His biggest environmental challenge is soluble fertilizer use.

"Environmental activists believe it will relocate into low areas," he says. "We use foliar fertilizer and spoon-feed. We try to put down only what the plant will pick up. Our property is prone to flooding, and if I were to put down any type of organic or granular product at a time when I anticipate a flood, those nitrates and phosphates would go right into the Sudbury River. I make sure I use products that won't relocate, and that's in line with the Audubon approach to fertility levels."

The club has partnered with Grigg Bros. Foliar Fertilizers and its technical representative, Gordon Kauffman, Ph.D., to develop the fertility program.

"Paul makes sure his fertility program takes an integrated approach to protect the environment," Kauffman says. "Our highly efficient foliar fertilizers maximize the use of nutrients. This method gets fertilizer into the plant more efficiently. Soil and tissue tests are used as guidelines. Paul then looks at how the plants are responding to fine-tune the program further. The goal is to stimulate plant health, which will reduce pesticide applications."

ART AND SCIENCE

Miller admits to stretching the limits of the integrated pest management approach.

"We have to be able to anticipate disease and infection," he says. "This is where the art of our profession takes over from the science, and this takes experience and ability. We have to able to see symptoms before there's injury to the plant. Some systemic fungicides have preventive and curative rates. The curative rate can be two, three and four times the preventive rate. The IPM approach is to scout, look for the pressure and apply. However, if there's a tournament or rain event that prevents application the next day, that first incidence of pressure could be three days from the time you can spray and make a difference in three times the rate of application.

"Let's say the humidity is 70 percent, nighttime temperatures are 80 degrees, and we're in a dicey situation looking at thunderstorms," he adds. "When the combined number is 150, we can expect some issues. We want to spray preventively and use less chemical. So, do we synergistically tank mix two products at low rates to get the strength from both chemicals, or do we wait a little longer and find out we have to go into the curative rate three days later? Is that anticipation outside the IPM approach? That's the art and science." GCI

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TOURNAMENT **TESTED**

Paul Miller, CGCS, is in his 20th year at Nashawtuc Country Club in Concord, Mass., and has hosted his 20th PGA Tour event, the Champions Tour Bank of America Championship.

"It's exciting to be able to push a golf course to its limits knowing how far you can go and peaking for a major event," Miller says. "That gets the juices going, and it still does after 20 years. Some tour officials told me I've hosted more PGA Tour events than anyone else in the country."

Course conditions have changed throughout the years, primarily because new players on the Champions Tour are coming off the regular PGA Tour.

"The players on the old senior tour were appreciative of quality conditions," Miller says. "The new players expect them. As a result, there's a lot of pressure on tour officials. The agronomists are sensitive to irrigation. They prefer no irrigation on fairways for the entire week of the event. They want firmness and consistency. But we spend more time on bunkers than any other area."

The height of cut for the tournament isn't different than when there's member play, with the exception of the rough, which is higher during the tournament. To achieve tournament conditions, the frequency of cut on the fairways is increased.

"We double cut fairways for the event," Miller says. "I also take advantage of high rates of growth regulators, and combined with increased frequency of cut there are few clippings. The fairways are extremely tight and dry. This, plus new golf club equipment technology gives players their distance."

The club's members take pride in hosting the event. As new members come in, almost all are supporters of the tournament despite any disruptions.

"It's a televised event, and they like to show off the club to their friends," Miller says. "But most importantly, our members are excited about the money that goes to charity. This year the tournament raised more than $400,000." GCI