aeration options

SUPERINTENDENTS IMPLEMENT VARIOUS PRACTICES TO MEET TURF NEEDS

BY STEVE AND SUZ TRUSTY

To golfers, aeration is a paradox – they don't like it done, but they like the results eventually. It's a good thing aeration options have opened the door for golf course superintendents to mix and match methods to develop the most effective strategy for the needs of the courses they manage. While typical core and spike aerification remain part of turfgrass management programs, other procedures are used, too, as the following four examples depict.

In the spring, superintendent Mark Krick and his crew aerate wall to wall, using five-eighths-inch coring tines on the greens and three-quarter-inch coring tines everywhere else. Photo: The Homestead Golf Course

One trend Bob Vavrek of the USGA Green Section sees is close-space aeration, as superintendents try to pull out twice as many cores for twice as much benefit. Photo: Steve Trusty

A 'PLAIN JANE' PROGRAM

Frank Pizzuto, Jr. is owner and superintendent of two 18-hole courses in New York: The Elms Golf Club in Sandy Creek and The Pines in Pulaski. The Elms has been a family-owned course since it opened in 1960, and The Pines was purchased in 1983. Both are in small towns near Lake Ontario and attract golfers who are tourists and army personnel stationed at Fort Drum in nearby Watertown. Budgets are tight and have been affected by a decline of play because of troop deployment.

Both courses have sandy soil – The Pines location was sand dunes before the course was developed – and feature Penncross bentgrass greens. Traditionally, the season runs from Memorial Day to Labor Day.

For the past 15 years, Pizzuto has aerated the greens and tees in the spring and fall with five-eighths-inch hollow tines at about a 2-inch spacing to a 4-inch depth.

"The soil is so sandy our winds quickly dry the cores," he says. "Then we drag mat them back in. The remaining debris is just small tufts of grass that we sweep off. The core material generally fills the holes pretty well. If necessary, we'll topdress lightly with sand matching our profile."

The spring aeration is planned for the first week in May and the fall aeration for the last week in August, but weather is the deciding factor. Though aerating later in the fall would affect play less, it's more important for long-term course conditions that holes heal before the onset of winter. Because aeration equipment is shared between the two courses, Pizzuto alternates the timing based on location convenience. The last to be aerated in the fall is the first to be aerated in the spring.

Fairways, which are aerated in the fall only, are perennial ryegrass and *Poa annua* with some bluegrass mixed in. Pizzuto uses a tow-behind Ryan aerator with open-spoon tines.

"We won't start on the fairways until after we've finished the greens and tees," he says. "We can change out our tines for solid-core aerification. Typically, we'll do that with our Toro unit and hit the greens and tees as needed for stress relief and better water penetration. With our native sandy soils, compaction is less of an issue so this 'plain Jane' program has worked very well for us."

WELL WORTH IT

The Homestead Golf Club in Lakewood, Colo., is an 18-hole public course that opened in 2002. The links-style course has heavy-clay native soil. The greens are 90 percent USGA spec sand and 10 percent Dakota peat topped with bentgrass. Originally, the tees and fairways were seeded with a mix of low-grow Kentucky bluegrasses and 10 percent perennial ryegrass. Since then, the tees have been overseeded with ryegrass.

"Heavy clay soils and excessive traffic/compaction are

Superintendent Judd Pittler at Hannastown Golf Club uses one-quarter-inch quad tines on the bentgrass greens in the spring and fall. He also has added an 8- to 10-inch-deep, solid-tine aeration in the fall. Photo: Barry Reeger

the overriding factors in our aeration program," says Mark Krick, CGCS. "In the spring, we aerate wall to wall. We use five-eighths-inch coring tines on greens and three-quarter-inch coring tines everywhere else. We tackle nine holes at a time, closing down that half of the course for a day. We collect the cores using a standard Cushman core harvester on all greens and most tees. Manual harvesting is required for those tees with extreme contours."

Krick works in conjunction with Bruce Nelson, CGCS, of Fox Hollow at Lakewood to supply their cores to a local composting company, which combines them with sand and humus to produce a ground compost material suitable for topdressing. It's provided to the two courses at a discounted price.

After harvesting, Krick uses a triplex unit with the Thatch-Away Supa System Verti-Cutter head, which can get down to one-sixteenth of an inch on a verticut reel to clean up any remaining debris.

"We'll topdress the greens with the 90:10 mix of sand to peat that matches the soil profile," he says. "The tees are topdressed with a sand and compost mix. Occasionally, we have topdressed our shorter stretches of fairway, but the results didn't justify the cost and time involved. We follow up with an application of fertilizer and soil amendments – usually gypsum – on the entire course. Amendments and respective rates are based on soil test results."

Krick aerates the greens, tees and roughs in the fall, generally starting near the end of September and depending on current weather conditions and long-range predictions.

"If we wait too late in the season, we'll have too little healing to avoid desiccation around the hole entry," he says.

Krick augmented his coring program with vertidraining, in which solid tines are used. He's followed the reports about using needle tines, but sees them as a better fit for those with sandy soils.

"The coring process is very labor intensive, but going into our fifth year, the results have proved to me that it's worth it," he says.

SANDY SOIL'S BENEFITS

Wild Horse Golf Club, a 9-year-old, 18-hole public course in Gothenburg, Neb., has native soil that's primarily a fine sand with little silt or clay. The greens are bentgrass; the green surrounds are a fine fescue with some creeping bentgrass mixed in; and the tees and fairways are a bluegrass/perennial ryegrass mix.

Josh Mahar, CGCS, generally aerifies the fairways, greens surrounds and tees in April and then again starting in late August and going into September, depending on the weather. He uses a Toro ProCore 880 with one-half or five-eighths-inch, side-eject hollow tines. Usually, he uses the five-eighths-inch tines.

"We allow the cores to dry down and then drag them with the metal keystone drag," he says. "After that, we'll go over the area using our deck mower set as low as it can go. By then, the area is pretty clean. Our sand breaks apart so easily that by a couple mowings it's hard to tell we've core aerated. Our golfers might notice it while we're in the process of aerating, but surface disruption is minimal, and it doesn't have much effect on play."

Mahar times fertilization shortly after aeration, basing the formula and application rate on soil test results. But he takes a different approach with the native-soil greens.

"For the past eight years, we've been managing them primarily with consistent topdressing, pulling matching material from one of the hillsides," he says. "We use a light application, ranging from one-sixteenth to one-eighth of an inch, every two weeks. We topdress, brush in the material with a cocoa mat drag and mow again

to clean up anything that's been pulled to the surface by the drag."

Mahar started using needle tines on the greens about four years ago. Before that, he used only the five-eighths- and one-half-inch tines.

"We install the needle tines on our Ryan Greensaire 24 and use them once or twice a year, but only as needed on the dry spots, not the entire green," he says. "It increases water penetration, and there's virtually no surface disruption."

APPRECIATIVE MEMBERS

Judd Pittler became superintendent of Hannastown Golf Club in Greensburg, Pa., in February of 2006. The original nine-hole course has 10 push-up *Poa annua* greens (one practice). The tees are predominantly *Poa*. A second nine holes were added about 10 years ago and include USGA greens that are primarily bentgrass with some *Poa* encroachment and modified-soil bentgrass tees. All fairways are clay-loam native soil with a mix of *Poa* and bentgrass. There's more *Poa* on the original course and more bentgrass on the new nine.

"For some reason, the new greens weren't aerified during the first three or four years, so there's a large organic matter buildup in the top 2 inches," Pittler says. "The two previous superintendents attacked that aggressively with aeration and used verticutting to reduce the thatch. I've adopted similar strategies, using one-quarter-inch quad tines in the spring and fall. We collect the cores using a core harvester attachment on a Cushman. The actual mix for the new greens used a sand particle size that's a little large. To avoid choking them off with too much finer sand, our topdressing is straight silica sand with an 80:20 ratio of large to small particles."

Pittler is incorporating sand into the older soil greens to bring the two nines closer agronomically. Along with the spring and fall quad-tine aerification and topdressing, he has used sand injection with the DryJect at least once the past two years.

"We've also added an eight- to 10-inch-deep, solid-tine aeration in the fall," he says. "We've used needle tines on all the greens in July to alleviate compaction and increase oxygen and gas exchange in the root zone."

During Pittler's first season, the greens showed some disease activity when they emerged from winter.

"We wanted to reduce abrasion on the tender turf, so instead of using brushes or brooms following topdressing, we used a push blower to blow the sand down into the holes," he says. "We didn't get any bruising, and it cleaned up well. It only took two people, rather than the eight to 10 for the other methods – a great advantage with our limited budget and crew size. Obviously, we've continued that procedure."

Pittler is using standard half-inch coring tines on the tees along with aggressive verticutting and slicing on the newer nine for thatch removal. Cores are collected on both sides.

"Our season usually runs from March to early November," he says. "Last year, mild weather extended play into January, so we weren't able to topdress the tees as planned."

Fairways are an issue at Hannastown, however, because they haven't been core aerified for more than 10 years.

"Fairway work has alternated between the Aerivator at a 4- to 5-inch depth and the AerWay slicer," he says. "We'd need to contract out for core aerification, but we're trying to work it into the budget."

Pittler found the multiple options for aeration are a great asset to his turfgrass management program.

"With the quad tines, we're getting coring benefits, but with less surface disruption and faster healing," he says. "With the deeper needle tines, there's essentially no surface disruption. These tools allow us to aerate more frequently and accomplish our goals with minimal inconvenience for the golfers. Our members really appreciate that." **GCI**

Steve and Suz Trusty are freelance writers based in Council Bluffs, Iowa. They can be reached at suz@trusty.bz.

Comparing tools for customized cultivation

> During his golf course visits, Robert C. Vavrek, Jr., senior agronomist for the USGA Green Section north-central region, sees many maintenance trends. One of them is more customized cultivation for a particular problem or goal. There are many new options available with tine types, penetration depths and spacing, and other cultivation methods that superintendents can consider.

"While superintendents generally use hollow tines for organic matter management, they might attack compaction with water or sand injection, or deep-tine treatment," Vavrek says. "With the new options, one of the trends is more close-space aeration, trying to pull out twice as many cores for twice as much benefit without spending more time on the operation."

One factor that always seems to affect aeration is golfers' rising expectation levels.

"They're less willing to accept playing surface disruption, especially on the greens," Vavrek says. "In response, we see superintendents substituting one type of cultivation for another, seeking less disruption, but increasing the number of cultivations within a season hoping for the same results."

With so many variables throughout the regions of the country in weather issues, seasons of play, and soil and turf types, it becomes increasingly important for superintendents to analyze cultivation options to determine what each can realistically accomplish in terms of their courses' specific needs, Vavrek says.

Editor's note: As well as direct consultation with the USGA Green Section staff, resources addressing cultivation issues can be found in the archives of the Green Section Record including: "Customized Cultivation," by Bob Vavrek, September/October 2006; "Aeration and Topdressing for the 21st Century," by Pat O'Brien and Chris Hartwiger, March/April 2003; and "Core Aeration by the Numbers," by Chris Hartwiger and Pat O'Brien, July/August 2001.