

BY ERIC BAUER

Challenged to improve fairway playability, The Club at Carlton Woods took a new approach toward dealing with organic matter.

In a world of high expectations, golf course superintendents are always evaluating new cultural practices that can be implemented to improve playability at their facilities.

Since 2006, five years after our grand opening, The Club at Carlton Woods challenged me to develop a plan to improve the playability of the fairways.

But first, some details about the facility. The Club at Carlton Woods is a private 36-hole facility located in The Woodlands, Texas. It's one of only two gated communities in the U.S. to offer a private Nicklaus/Fazio combination.

The Woodlands is a 28,000-acre master-planned community located 27 miles north of downtown Houston. The Nicklaus course opened with great acclaim in 2001 and the Faizo course followed in 2005, both being designated by Golf Digest third Best New Private facility in the U.S. after opening.

The Woodlands Development Co. wanted to create a special place that was maintained at the industry's highest level. The care and conditioning of the course would always be conducted in a manner that best preserves long-term playability and health of the plant while remaining true to the courses' original designs. This goal created a standard that we used not only after the courses were grassed, but implemented during the construction and grow in of the courses.

In an effort to provide the best possible playing surfaces, the design team along with consultants recommended that the fairways be sand capped with 8 inches of sand as well as install miles of sub surface drainage. This proved to be an excellent decision; however, as time passed we found that sand capping the golf courses would require a different approach with future cultural programs to achieve the desired playability by the membership.

Both courses have Tif-eagle on the greens, however the turfgrass on the fairways, approaches and tees are completely different between the two courses. At the Nicklaus course we have Tifway 419 Bermuda grass, and at the Fazio we have Zeon Zoysia grass, which made Carlton







# EVOLUTION

## ORGANIC

Woods the only course in the Houston area to select Zoysia grass as a playing surface. Many superintendents understand that Bermuda and Zoysia grasses produce high levels of organic matter and thatch throughout the growing season and as time passes they will require aggressive cultural practices to maintain proper organic matter levels.

In 2006, I began receiving comments from the general membership that the fairway playability at the Nicklaus course was being impacted in the following ways:

- Debris was being collected on the ball after impact on a regular basis;
- Decrease in ball roll after impact;
- Extended periods of wetness after rain fall; and
- More days with cart path only restrictions.

I did my best to educate the membership that there are many factors that affect surface playability starting with weather, growing season, turf density, soil structure

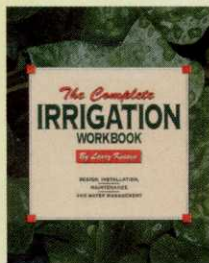
and excessive organic matter accumulation. After consulting our hired agronomist -- Ed Etchells, president of Greens Management / Golf Turf -- we determined our main focus would be to reduce the percent level of organic matter in the soil as well as improving the soil structure.

My objective was then to determine the best methods, establish frequencies and project costs that would control organic matter. We concluded that the best way to accomplish this was by aerification, de-thatching and sand

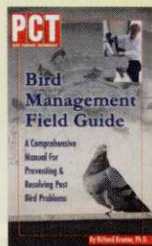


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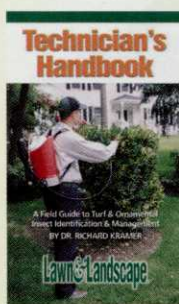
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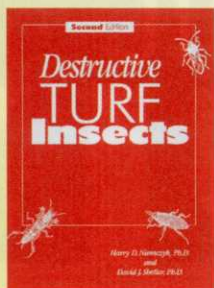
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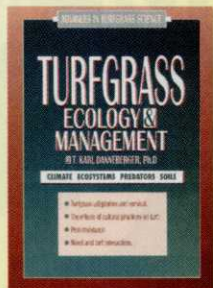
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## COURSE CONDITIONS



The author found the best way to control organic matter was by aerification, de-thatching and sand topdressing.

topdressing. These cultural practices would focus on improving surface firmness, debris collected on the ball at impact, ball roll throughout the playing surface, infiltration rate of water, plant health and density.

So starting in Spring 2007 we added a second scheduled hollow-core aerification in the spring, implemented a sand topdressing program to dilute the organic matter, treated irrigation water with acid to lower water pH and bicarbonate levels, applied gypsum and lime to improve water penetration and lowered total nitrogen input per year.

These practices all displayed excellent results. In fact, our test results concluded that over a two-year period we were able to reduce our organic matter by 2 percent. However, in a period of instant results there was still a membership demand to reach our fairway standard in a shorter time frame. This request required me to develop a plan and research equipment that was available to deliver a greater impact on improving our fairway playability.

After Ed Etchells recommendation, we determined that the Koro dethatching machine could be a solution to our problems. The Koro dethatcher is an aggressive, vertical mower that has the ability to dethatch at a 2-inch depth on 1-inch spacing, as well as remove the excess material by way of a conveyer belt. University research found that vertical mowing will have the greatest impact to surface area toward organic removal. I knew that the Koro had to be added to our hollow core aerification and topdressing program. Once we had an additional method to aid in correcting our issue, a plan of action was developed and presented to the owners and membership.

The first step of the plan was to determine the percent level of organic matter that was below the turf. This was accomplished by sending off a sample core to an accredited soil testing lab, which determined the percent level of organic matter that is present throughout the first 3 inches.



Once we had the test results we selected tine size, spacing and blade depth based in percent organic matter test. Then I was able to determine frequency and time required to reach our desired organic matter levels.

Our program for fairway improvement for the summer of 2010 was as follows:

- Core aerate fairways 1x with 3/4" tines on 3- inch spacing;
- Dethatch fairways with Koro machine using 3mm blades on 1" spacing;
- Koro removed cores by dumping into



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- three 6-cubic-yard trailers;
- Mowed at 3/4" behind Koro with rotary mower to complete clean up and scalp turf;
- Cleaned up material that was left behind from Koro and mower;
- Mowed at 1/2" with reel mower to even up surface;
- Topdressed fairways and dragged in sand;
- Mowed at 7/16" to scalp and smooth surface;
- Rolled fairways with 1 ton roller; and
- Applied fertilizer and soil amendments

Labor hours totaled 312 and the budget was set at \$32,500, which included rental equipment, tines, blades, sand, fuel and fertilizer but did not include labor.

Even with the aggressive scalping, coring

and de-thatching that took place, we still were able to open five days after for member play and 21 days after the process took place the members were unable to notice anything.

The feedback has been very positive toward the playability of the fairways. The membership is noticing more ball roll, less debris on the ball after impact and faster drainage after rainfall. The Koro machine will play a part in the yearly organic removal process at Carlton Woods.

Throughout this whole process, I have really learned that we must remain proactive in educating our owners and membership that as a golf course ages the maintenance approach in providing a perfect surface needs to change as well. GCI

*Eric Bauer is director of grounds at The Club at Carlton Woods, The Woodlands, Texas.*

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