

# Are You Walking on Water?

Tom Brodeur  
Crystal Tree Golf & C.C.

One of the peripheral responsibilities of golf course superintendents that has no impact on golf course playability but often affects the bottom line of success is that of lake and pond algae control.

More than once, just when my staff and I thought we had all the details covered (that is, the golf course looking and playing great, and we're "walking on water"), we play host to an unwelcome guest in the form of an algae bloom in one of our 16 retention ponds. To many, this may not be a problem of immediate importance, but in our case, it can be to one or more of the occupants of the 435 surrounding residences whose property values are plummeting with each dividing algae cell. Reminders come in the form of "friendly" passing conversation on the street or a "pleasant" message left on telephone voice mail. For the ambitious critic, not too much time can be taken to type a beautiful letter on monogrammed stationery (providing copies for the club and homeowners association presidents), or even taking a course in photography and applying the newly-learned skill to capture the "scum" observed in adjacent waters isn't unthinkable.

Ok, I am exaggerating a little about the photography course. Algae control is for many superintendents part of the job. It seems to be an imperfect science with several control strategies, some of which can be expensive and not always provide consistent results.

According to John Cotell of Marine Biochemists, the primary aquatic weed control problems faced by golf course superintendents in the Midwest are suspended planktonic algae and filamentous algae blooms.

After speaking with local superintendents who have experienced successful algae control, the common thread is utilizing a combination of strategies adapt-

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ed to local circumstances. Most of the problem lakes are characterized by shallow depth, nutrient-rich bottoms, poor natural water movement, little or no natural plant buffering, and a source of excessive nutrients like a golf course or nearby homes.

Tony Kalina at Prairie Landing Golf Club may have the best example of the benefits of native plant buffering and good water movement. Tony feels that because of the native prairie that

wraps around most of his water and good natural flow, he is not required to treat any of his water. He does have the acceptance factor for the wild look throughout, which many golf courses do not.

At Midlane Country Club, Brad Anderson does have the acceptance factor in about nineteen acres of wetlands that are currently undergoing plant restoration, but he also has twenty acres of water that he performs algae control on annually. Brad feels that the water adjacent to homes near the golf course are where his worst problems exist. He preaches "simplicity" in his aquatic management practices. He has had one employee trained to monitor and treat his water for about three hours, every two weeks, for the past three years. His chemical treatment is with granular chelated copper sulphate, blue dye, and an infrequent application of aquathol on an as-needed basis. Brad stressed that he uses granular products over liquid to avoid unwanted residues in the sprayer. Midlane also has stocked grass carp which Brad feels are beneficial. More than anything, Brad believes in getting started with monitoring and treatment immediately after ice melt in March.

Another superintendent who believes in getting a jump on potential problems is Dan Albaugh at Ruffled Feathers Golf Club. Dan retains the services of an outside contractor (Environmental Management, Inc.) each season to monitor algae development and implement any necessary control measures. Dan pays the contractor a

(continued on page 10)

**Are You Walking on Water?**

*(continued from page 8)*

flat fee each year for monitoring and applying chemicals to his 18 lakes and creeks. Chemicals, primarily copper sulfate, are an additional expense. Most of the treated lakes at Ruffled Feathers are characterized as "federally mitigated wetlands" and are only about four feet deep according to Dan. When he arrived at Ruffled Feathers, Dan says that he could retrieve golf balls off the top of the water the algae was so thick. After stocking sterile grass carp and instituting his current monitoring and treatment program, the result has been virtually no algae problems. Dan is considering adding one of the several biological controls currently available to his program next year.

One superintendent who has utilized biological controls with apparently excellent results is Ken Lapp at Cog Hill. Ken

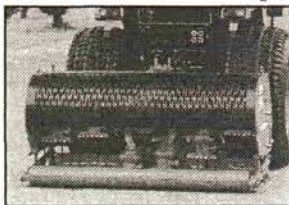
*Ken then installed a slow-release bacteria reactor . . . that he says very quickly clarified the water and within a month had eliminated the algae entirely.*

had an interesting story regarding his currently 4-foot-deep irrigation pond which is sched-

uled for dredging this fall. Prior to the Western Open this past July, the sprinkler system at Cog Hill began clogging, while not coincidentally the irrigation pond was building up a healthy algae bloom. It got to the point that the Cog Hill staff was cleaning sprinklers and the intake box on a daily basis. Ken then installed a slow-release bacteria reactor from a company called Bio Verse that he says very quickly clarified the water and within a month had eliminated the algae entirely. He has since added them to several other lakes. Ken explained that he had previously done nothing in the way of chemical control, which may explain why his results were so dramatic. According to manufacturers of the biological products, chemical and biological treatment are incompatible,

*(continued on page 14)*

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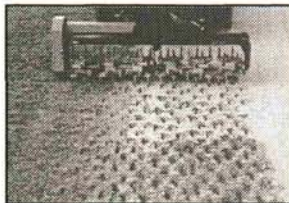
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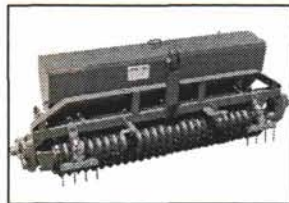
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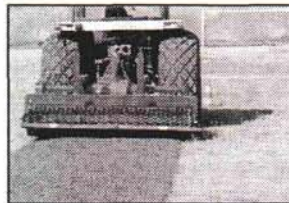
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### Are You Walking on Water?

(continued from page 10)

and it can take a few months or more for chemical residues to become inert. Ken doesn't utilize any form of aeration either, which may also be an advantage in this case because the bacteria utilized are facultative anaerobic bacteria, which again, according to the manufacturer, perform better in the absence of oxygen.

Continuing along the lines of the absence of oxygen, what would an expert column be without helpful advice of Dr. Randy Kane and, coincidentally, Paul Vermeulen during a recent USGA visit. Each mentioned simply floating hay bales in a pond as a method of algae control. According to both of these respected experts, the slow decomposition of the hay may be depleting the oxygen content of the pond and, since algae is an oxygen consumer, reduces algae

growth. No superintendent that I contacted had tried this technique.

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*We own 14 floating fountains from 4 different manufacturers, all of which provide excellent revenue to the electric company and are very pleasing to the eyes of golfers and homeowners alike.*

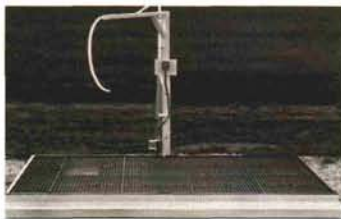
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One superintendent who does utilize aeration is Pete Leiponis at Old Oak C.C. Pete has a simple plan of attack. He

dredged his irrigation pond to at least twenty-four feet deep, stocked a few grass carp, installed a 1-1/2 h.p. vacuum pump, and attached poly tubing and a domed diaphragm aerator stone like those utilized in the wastewater industry. He operates the pump all year long, 24 hours a day. According to Pete, he has no algae problems except a little bit of duck weed when it gets very hot.

As for what we have done and are currently are doing at Crystal Tree to save stationery and photographic paper and lower telephone bills, I'll offer the following marginally expert information. We own 14 floating fountains from 4 different manufacturers, all of which provide excellent revenue to the electric company and are very pleasing to the eyes of golfers and homeowners alike. The aerators are operated twelve to fourteen

(continued on page 35)



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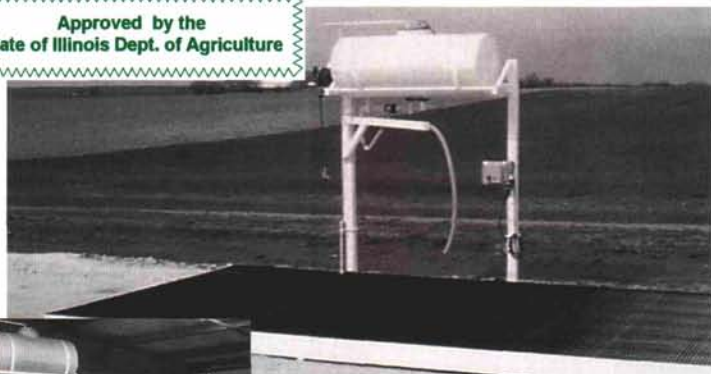
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### Late Season Nitrogen Fertilization

(continued from page 18)

below those considered optimum for shoot growth.

Nitrogen applications during the late season, if timed properly, will extend the greening of the turf later into the fall and winter. Spring green-up will normally occur earlier. The green turf is photosynthetically active, favoring a positive carbohydrate balance. Late-season nitrogen fertilization increases the "green growing" period of the turfgrass plant later into the fall and earlier in the spring. Physiologically, this is a positive agronomic practice.

The most efficient nitrogen fertilizers for use in late-season fertilization programs are those independent of temperature for nitrogen release. Soil temperatures and microbial activity are

low at this time of the year, resulting in less efficiency from methylene urea and other temperature-dependent fertilizers. Urea and IBDU slow-release nitrogen are fertilizers that are independent of temperature for nitrogen release and, therefore, make for excellent late-season nitrogen sources. IBDU slow-release nitrogen, having a slow-release characteristic, will not cause surge growth even if misapplied (e.g., too early) in the late-season program.

Nitrogen is a key component of turfgrass fertilization programs. It has an influence on both the morphology and physiology of the turf plant. High quality turf exhibiting acceptable green color and density requires periodic applications of nitrogen. Nitrogen, however, is frequently referred to as the

"TNT" of turfgrass fertilization programs. It can be just as detrimental as beneficial if it is mismanaged. Physiologically, the turf manager must maintain a good carbohydrate reserve. Proper timing and rate of application are important in successful long-term programs. Always remember: Greener is not always better. A happy medium must be reached between agronomics and aesthetics. ■

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### Are You Walking on Water?

(continued from page 14)

hours per day in order to control costs. I won't get into manufacturers so as not to offend anyone, but I can say that the most recent purchase which has a sealed centrifugal motor and low friction nozzle seems like the easiest to take care of, the least likely to clog, and the most likely to control algae because extension tubes can easily be added to get closer to the bottom of the pond.

We gave up on chemical controls five years ago and jumped onto the biological bandwagon using Aqua T, Pond Kleen, Wizard, and, more recently, the Bioverse reactor. In an attempt to verify the usefulness of these products, we have discontinued using them and observed

regrowth of algae in a known problem pond.

There are grass carp in most every pond, and they do eat algae and are adept at trimming the lake banks when water levels rise during storm events. Grass carp seem to be the largest in lakes that have floating fountains.

More recently, the residents and golfers have allowed buffers of grass and native plants to gradually grow up around portions of some lakes and entirely around others. These buffers should help reduce nutrient inputs from the golf course and homes but may also be a method of reducing our erosion problem. Due to erosion, there is a tremendous amount of suspended silt in some of our ponds which is probably every bit as

good as blue dye at filtering light. This is one algae control method we'd be happy to do away with considering the implications to irrigation water quality. For now, these methods are working well in our situation.

Like virtually every other aspect of golf course management, an ounce of prevention is worth a pound of cure. John Cotell of Marine Biochemists believes that creating shade, developing buffer zones, and reducing fertilizer applications, particularly phosphorus, would go a long way toward reducing the need for algae treatments in golf course ponds.

Thanks to the participating experts for sharing their successful ideas and methods. ■