

components. These comparisons are illustrated in Figure 2.

Conclusion

The reduced-rate fungicide mixtures have proven to be very effective in the control of dollar spot. They resulted in total dollar spot suppression in the 1995 study, and they have also provided as much or better control than their individual components at the label rates. With the use of fungicide mixtures, which have components with different modes of action, resistance may be delayed or prevented. As a result, the life of a useful and otherwise at-risk fungicide could be prolonged.

As turf managers, we face many difficult challenges. If we can extend the useful life of a chemical on our golf course, we can alleviate one of them. New fungicide development is both costly and time consuming. On average, a new fungicide takes about ten years and one-hundred million dollars to go from initial testing to the marketplace. Fungicide resistance is a serious matter and must be dealt with accordingly. As turf managers, we must take the responsibility of


pursuing appropriate disease management tactics.

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* References to products in this article are of convenience and are not an endorsement of one product over other similar products. You are responsible for using chemicals according to manufacturers current label directions. Follow directions exactly to protect the environment and people from chemical exposure.

Failure to do so violates the law. However, reduced-rate deviations from the suggested label rate that are mentioned in this article are lawful as long as the label does not state otherwise. These studies were conducted in Pennsylvania under controlled experimental procedures, so additional experimentation may be required to suit your needs. 🌱



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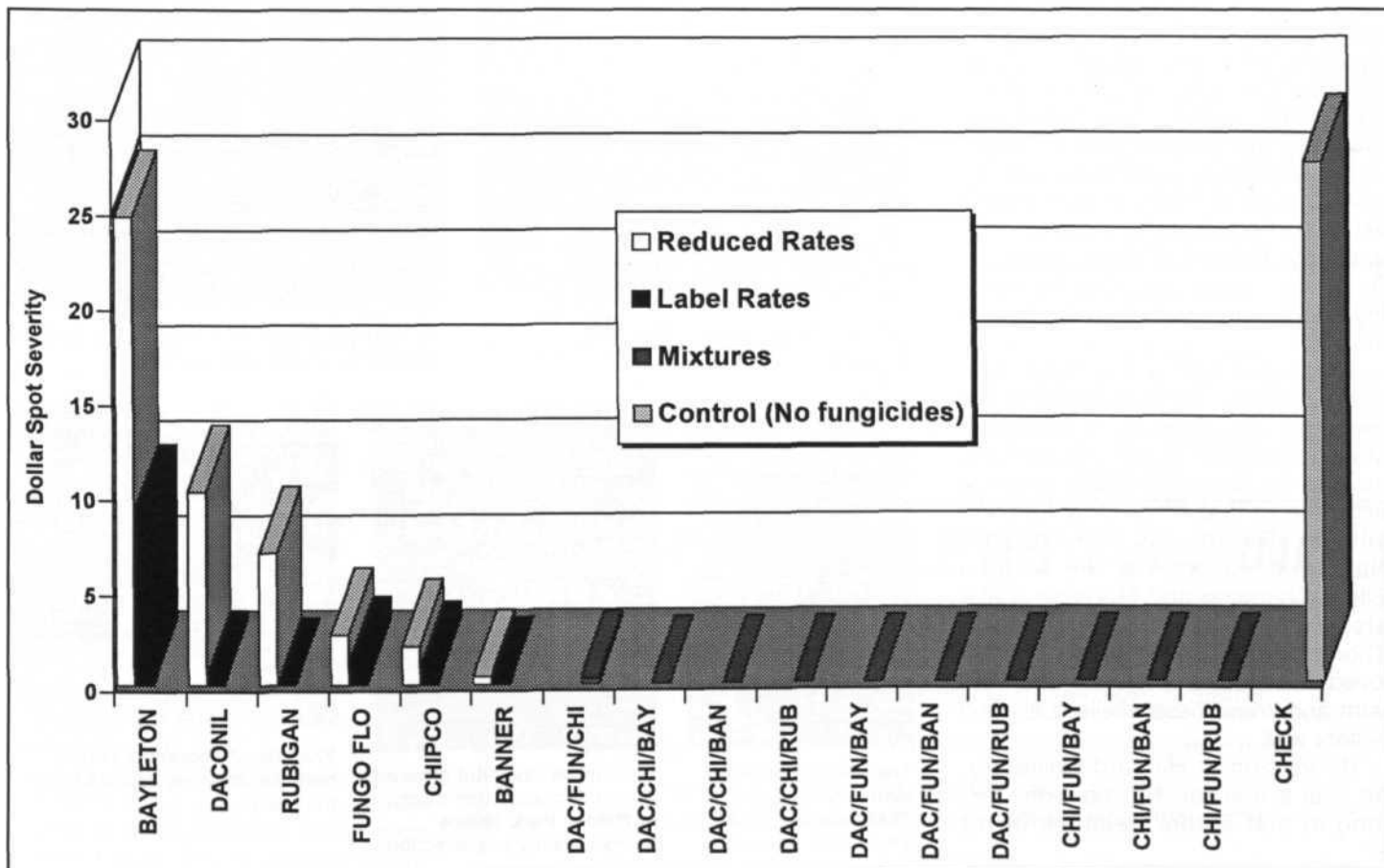
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FIGURE 2. Management of dollar spot by fungicides applied at reduced-rates, or at reduced-rate in mixtures. DAC=Daconil 2787; FUN=Fungo Flo; CHI=Chipco 26019; BAY=Bayleton; BAN=Banner; RUB=Rubigan





A VISIT TO WALDEN POND

By Monroe S. Miller

Henry David Thoreau was one of the first environmentalists. Maybe in his time the word "naturalist" was more accurate. Either way, he observed and wrote about man's relationship with the world he lives in. That is probably what inspired me to first visit Walden Pond many years ago. I've been there several times since, once with Cheryl and most recently last fall.

Sensitivity to environmental issues, as I look back over my career, is one issue that has grown immensely. It is at the point now where it is a part of the very fabric of a career as a responsible golf course superintendent. In that context, men like Thoreau, John Burroughs, John Muir and Aldo Leopold are even more impressive. Thoreau was generations ahead of his time.

Thoreau's willingness to live a spartan existence and to spend time as an observer and a thinker pushes him into the arena of philosophy. I have read several of his books and many of his essays and willingly admit he treads on ground I don't always want to share when he talks about civil disobedience, government and any number of other subjects. But, from a purist viewpoint, his thinking about man and nature is close to the mark.

Henry was born at the place most of us consider the birthplace of our freedom in America—Concord, Massachusetts—and he lived there most of his life (1817-1862). It was a rich time in that small New England village; Ralph Waldo Emerson, Nathaniel Hawthorne, the Alcotts, Ellery Channing and Margaret Fuller also called Concord home during Thoreau's life. Even though the man loved solitude, he didn't live in a vacuum and knew these intellectuals and writers well.

By training at Harvard University, he was a teacher. But he didn't last long in that career because of his

unwillingness to execute the strict discipline on students required by the school. After odd jobs around Concord from 1837 to 1845, he arranged with Emerson to build a small cabin on Emerson's land at Walden Pond.

Walden Pond is south and a little bit east of Concord village by about a mile and a half. The site Thoreau chose for his small house was above the lake level on a slope north of a cove that now carries Thoreau's name. Although it is relatively close to town, I can testify that you have a sense of remoteness at the home site.

Starting with site clearing in March of 1845, Thoreau began his shelter.

He borrowed an axe, cut and hewed the timber he would need. With other borrowed tools, he shaped studs and rafters, cut mortises and tenons and roughed frame members he needed. He dug the cellar, laid stone piers for a foundation that supported the sills.

By mid-April, the house was framed. He built a chimney and hearth on one end, and with \$8.035 he purchased used shanty boards to cover the roof and frame. He moved in on July 4, 1845 and worked until mid-November on windows, plaster and shingles. When he was done he had "a tight shingled and plastered house, ten feet wide by fifteen feet long, and eight-foot posts, with a garret and a closet, a large window on



Thoreau's final resting place is in Concord...



on Authors Ridge. The small stone on the left marks where he is buried.



The site of Thoreau's cabin was found in 1945, one hundred years after he built it.



A volunteer chestnut growing from a deceased tree stump in Walden Park. Notice foliage already has infection.



The site of Thoreau's cabin; note the chimney foundation in the back.

each side, two trap doors, one door at the end and a brick fireplace opposite."

All for \$28.125!

Over the months he fitted his small dwelling with the bare essentials of furniture he already owned, as well as cooking utensils.

He didn't work hard (which he readily admitted) and therefore didn't eat much. Fishing, some hunting and gardening provided the food he needed. He cut wood for fuel and grew beans for cash. Occasionally, he did odd jobs in Concord for money when he needed it. At the end of 1845, his income amounted to \$23.44 and his total expenses (other than the shack) were \$14.725!

Thoreau had brought some books about surveying in 1840, as well as some basic instruments. In time he became very proficient at surveying (remember, he was self-taught) and in 1848 was named the village surveyor-in-chief. He was exacting in his work and had projects as far away as New Jersey. One interesting thing he did was map Walden Pond, including a depth profile. The Walden Pond project and much of his other work has been checked with the most modern instruments, as recently as 1970; all studies confirm the accuracy and near perfect correctness of Thoreau's work.

HDT lived at Walden Pond for two years, two months and two days (July 4, 1845—September 6, 1847). I guess in that time he figured he had extracted about as much from the experience as he could. He moved from Walden to Emerson's home to house sit while RWE was lecturing in Europe. After that he moved to his parents house and lived there until he died at the young age of 44 of tuberculosis.

In his life, mostly after Walden, he did a fair amount of travelling—to the Maine Woods (read the book sometime), Cape Cod, the White Mountains in New Hampshire, Canada, and even to Minnesota. Don't you wonder if his trip to our neighbor to the north and west took him across Wisconsin? Where did he stop? Did he stay overnight while here?

He ran the family pencil business until he died in 1862. But he spent a lot of his time after Walden writing. If one looks long enough, there always seems to be a personal connection, even if it is by a mere slender thread.



The stone pile built from rocks carried there by pilgrims to Walden.



The replica of Thoreau's cabin in the park, along with a bronze statue of HDT.



Tranquil, peaceful Walden Pond, taken last fall.

Here is the one I discovered for myself. I learned that Thoreau's book *A Week on the Concord and Merrimack Rivers* was published in 1849 by the Boston publishing firm of James Munroe and Co. Some research revealed that James' great great grandfather (George Munroe) and my seven great grandfather (William Munroe) were brothers! Both are buried in the cemetery near the village green in Lexington, Massachusetts.

Walden was published in 1854 and except for a few years between the first and second printings, it has never gone out of print. In fact, it has been translated into dozens of languages. It is a book that most of us have read.

Thoreau visited Walden Pond for the last time in his life in September 1861 and died the following May.

When Thoreau left his house after two years, two months and two days, he gave it to Ralph Waldo Emerson. Emerson, in turn, sold it to his gardener. It was moved some distance away. After that it was again moved and finally used for scrap lumber in 1868.

Over the years, the site of Thoreau's cabin became overgrown and lost. Walden, after his time, became a very popular public place, and it remains so yet today.

In November of 1945, a hundred years after Thoreau moved to the

(Continued on page 35)

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(Continued from page 33)

slope above the pond's prominent cove, an amateur historian and Thoreau enthusiast named Roland Wells Robinson discovered and excavated the foundation of the Thoreau chimney. In July of 1947, the Thoreau Society dedicated an inscribed fieldstone to mark the hearth site. And in 1965 the National Park Service designated Walden Pond a registered national historic landmark.

Today, near the parking area for the park, you can visit a replica of Thoreau's house before you hike to the cabin site itself. If you plan to visit this touching place, take with you a stone from your yard or your golf course and place it with others carried there from all over the world as a tribute to this visionary. I have done it each time I have visited.

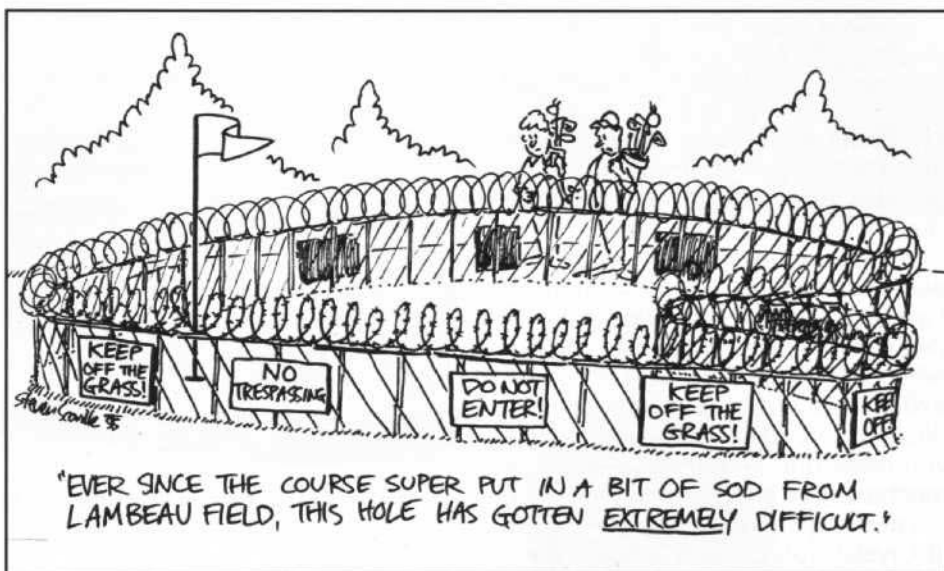
Nature to Henry David Thoreau wasn't just a background to man's life; rather, he believed it to be a part of each of our lives. It was not raw material to use and use up, but something that was essential to our inner being. I have to believe that for those of us who work so closely with

nature, in the very midst of it, such a philosophy is felt and (hopefully) believed.

You can easily, today, go to a library or your favorite bookstore and begin reading books by Thoreau and about him. I think you will appreciate them and find them interesting and even inspiring. And if you are even close to Boston sometime, try to visit

Walden Pond. A part of the pilgrimage should include a stop at the Sleepy Hollow Cemetery in Concord; Thoreau is buried in a peaceful spot called "Authors Ridge" near the Alcotts, Nathaniel Hawthorne and his good friend and mentor R. Emerson.

It is unlikely you would remain untouched by seeing these very special places. 🌿



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Lambeau lawn becomes larger than life: *Tales from "Title Town"*

By Norman Ray, Superintendent, Crystal Springs Golf Course

Editor's Note: We didn't have to go far to find the perfect article for this feature in this issue. Nothing has so occupied the Wisconsin sports scene like the Packers' 1996 season and 1997 Super Bowl victory since the Badgers won the 1993 Big 10 title and the 1994 Rose Bowl.

A big piece of the news during the playoffs involved the resodding of Lambeau Field in January. A WGCSA member donated his time—two days—and then wrote about his experience in the last issue of The Wisconsin Turfgrass News. In case you missed it, Norm Ray's article is reprinted here with permission.

I'm the golf course superintendent at Crystal Springs Golf Course which is about 15 miles west of Green Bay. My home is in Green Bay and like everyone else, we have suffered through the trials, tribulations and struggles of the Packers over the years. Also like everyone else, we have been sharing in the recent excitement of the past few seasons.

I heard they were planning on resodding the field after the rain drenched game with the 49ers on Saturday, January 4, 1997, that destroyed the turf. Who would have ever thought turfgrass and sod would be front page stories in newspapers throughout the midwest? I saw on the local TV station that some people were just walking into Lambeau to volunteer themselves towards the effort. Well, I decided this would be a



Field supervisor, Todd Edlebeck, rolling the sod.



The sod has yet to be laid where the tarp is located.

once in a lifetime adventure to also volunteer and felt I would be doing my part for the Packers (and all turf-minded Packer fans everywhere). On Wednesday morning I headed over to Lambeau Field.

After a brief conversation with a guard I walked down onto the field. First of all, it was exciting and inspiring just to take in the aura of the stadium. There was an energy in the air. Crews had already removed about half the sod from the field. My first impression was wondering how the job was ever going to get done for the game on Sunday. I wandered around for awhile until I spotted Todd Edlebeck, the field supervisor at Lambeau. I introduced myself and asked if I could help. Todd is a very competent, likable guy who reminds me of a mini Mike Holmgren. He introduced me to the person in charge of the resodding, Jack Kidwell. So, I was on my way.

The project was under the direction of Jack from Duraturf Services Corporation, a sod company from Richmond, Virginia along with Chip Toma from the National Football League, and Todd's crew. Chip was marching around the field. He, Jack and Todd reminded me of generals on a battlefield as we engaged in our war against bad sod!

I felt sorry for the crew from Virginia which consisted of only 11 people. They were really bundled up. The temperature was only in the teens but I didn't hear any complaints about the cold. The rest of the sodding crew consisted of about 10-15 volunteers. One was a high school teacher from Virginia who called the sod company on Monday morning and had 45 minutes to pack up to

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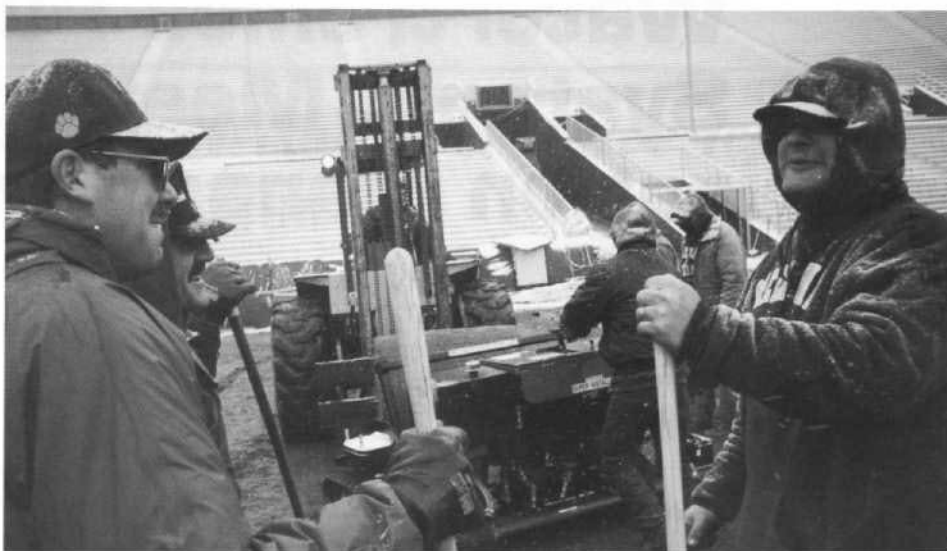
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come with them. Another one was a 55 year old retired General Motors worker from Janesville who also had an urge to come and be part of sports history. The crew was a mixture of characters who were quite good workers too. I met Randy Witt, superintendent from Oneida Golf and Riding Club in Green Bay, who was there during both days of the resodding. He was delivering his special mix of topsoil for low spots on the field.

The old sod was really a swampy mess. It had been dyed green but still was showing good signs of life. After the old sod was cut using a sod cutter, they used skid steer loaders to carry it to the parking lot where people were picking it up for souvenirs! Later they had to station a guard there to protect it.

The new sod was 2 inches thick, 42 inches wide and in 48 foot long rolls. It was a pure bluegrass stand grown in what looked like a clay and silt soil. The field itself looked like a silt loam soil. From what I heard there is no drainage system within the field. It is just crowned along the center shedding water to the sidelines, hopefully! The heating coils are buried 6-7 inches below ground. Some of the coils, near the visitors side, were not working very well and they had a hard time cutting the old sod in that area.

The new sod was laid using a small machine on rubber tracks that lifted a roll of sod and then unrolled it. The hard part came in making a tight fit between the pieces. We used what they called "tater forks" (potato) to snag the sod and pull it tight. Four to five people would get on one side pulling with the tater forks and four to five on the other side pushing with gravel rakes. We moved down the sod length doing about 10 feet at a time. Each sod piece had to be fitted just like we do on the golf course except that these pieces each weighed over a ton! The wet soil acted like glue underneath. It was not an easy task. With two crews fitting the sod, we were able to lay one row from end zone to end zone in about 15 minutes. The total job of laying the sod took two days. There was some patching that had to be done where the sod was thinned out or where rocks showed up. Afterward, a roller was used to firm the sod to the underlying soil and then the cover was put over it.



Some happy volunteers behind the sod laying machine.

It was not a perfect field. That would have been impossible to do in such a short time. It was a good field though and from what I saw during the game it held up really well. John Madden never showed up on the field but we did see him wildly gesturing up in one of the press boxes late on Thursday afternoon. Some of the players and Coach Holmgren took a quick peek on Wednesday.

Being a part of all this was fun, but also very hard work. I occasionally would ask myself, "What am I doing here?" Every muscle in my body was sore on Friday. But, I felt like I was contributing to part of sports history. There was good camaraderie among the crews along with a real sense of being on a mission; a war against bad sod! After all that work, Todd said the sod will all



Norm Ray, the author, experiencing the moment.

be taken out and redone again next season because there was too much clay in the sod mix. I had heard reports that the entire project cost between \$100,000 and \$150,000. That's a pretty expensive sod job for one day's use, but worth it. GO PACKERS!! 🍷

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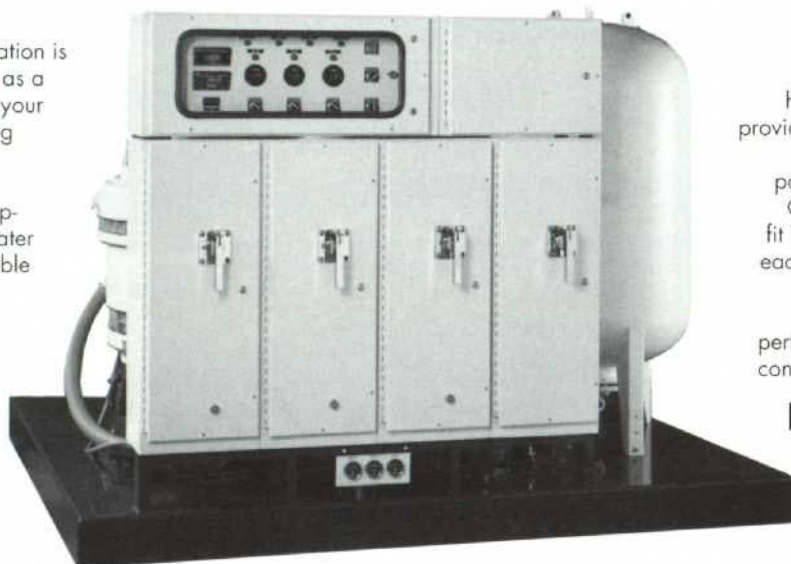
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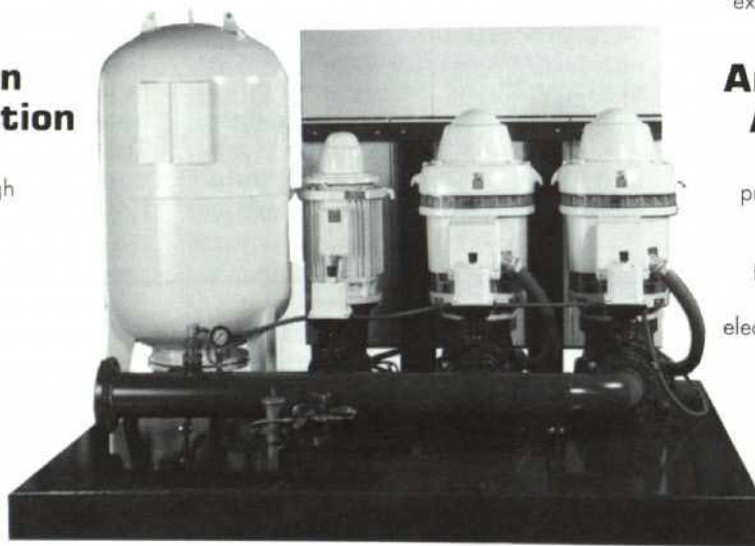
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To Remove Ice or Not to Remove Ice — That is the Question

By Robert Vavrek, Agronomist
USGA Green Section, North Central Region

Ice accumulates on someone's greens in the North Central Region every winter. Golf courses in Minnesota have been especially hard hit by ice cover and many superintendents have called the office with questions regarding the potential for winterkill. The most common knee-jerk reaction to ice cover on greens is to remove the ice as soon as possible, especially when ice develops in early winter. In response to the numerous inquiries, I drafted the following letter that was sent to about 450 courses in Minnesota through the cooperation of the Minnesota Golf Association. Several of the USGA agronomists located in northern states also contributed to or edited the letter. For those of you in Wisconsin having similar concerns, feel free to use the following response to the Minnesota ice problems.

ICE ALERT

Due to the unusual weather patterns during November and December many greens and low lying fairway areas on golf courses throughout Minnesota have become covered in ice that varies from less than one-half inch to several inches thick. In response to numerous requests for recommendations regarding the potential for winterkill to turf, particularly *Poa annua*, under prolonged periods of ice cover, the following information is being made available to as many facilities as possible with the assistance of the Minnesota Golf Association.

Ice cover on turf is not an unusual event in Minnesota, what is unusual is the length of time the ice will remain on the playing surfaces unless a midwinter thaw occurs. The most common question is: Will over 100 days of solid ice cover cause injury to *Poa* greens? Should the ice be physically removed?... There is no clear-cut answer.

The most common causes of winterkill to turf are (1) crown hydration-the injury that occurs to the growing points of grass plants during freeze/thaw events, (2) cold

temperature fungal diseases, (3) direct low temperature kill to exposed turf, and (4) desiccation that commonly occurs on elevated sites on the course that lack snow cover during windy, frigid weather. I agree with many superintendents and researchers in that both *Poa* and bentgrass can survive over 100 days of ice cover if the turf has had an opportunity to harden off properly during late fall and when the ice retains consistent snow cover all through the winter.

The "suffocation" of turf under ice probably occurs where sunlight penetrates black ice (clear ice) and causes a slight warming at the playing surface. A thin layer of free water and an increase in temperature under the ice might stimulate microbial activity and cause the turf to break dormancy — either condition could result in the buildup of toxic gases or carbon dioxide. A similar process might occur when ice forms on greens before the ground freezes. The bottom line is that there is little scientific research in turf literature to support this process. The injury to turf that is frequently blamed on ice cover probably occurs during the initial freezing process or immediately
(Continued on page 41)

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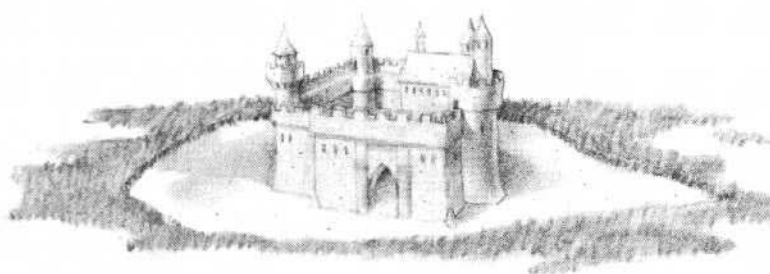


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