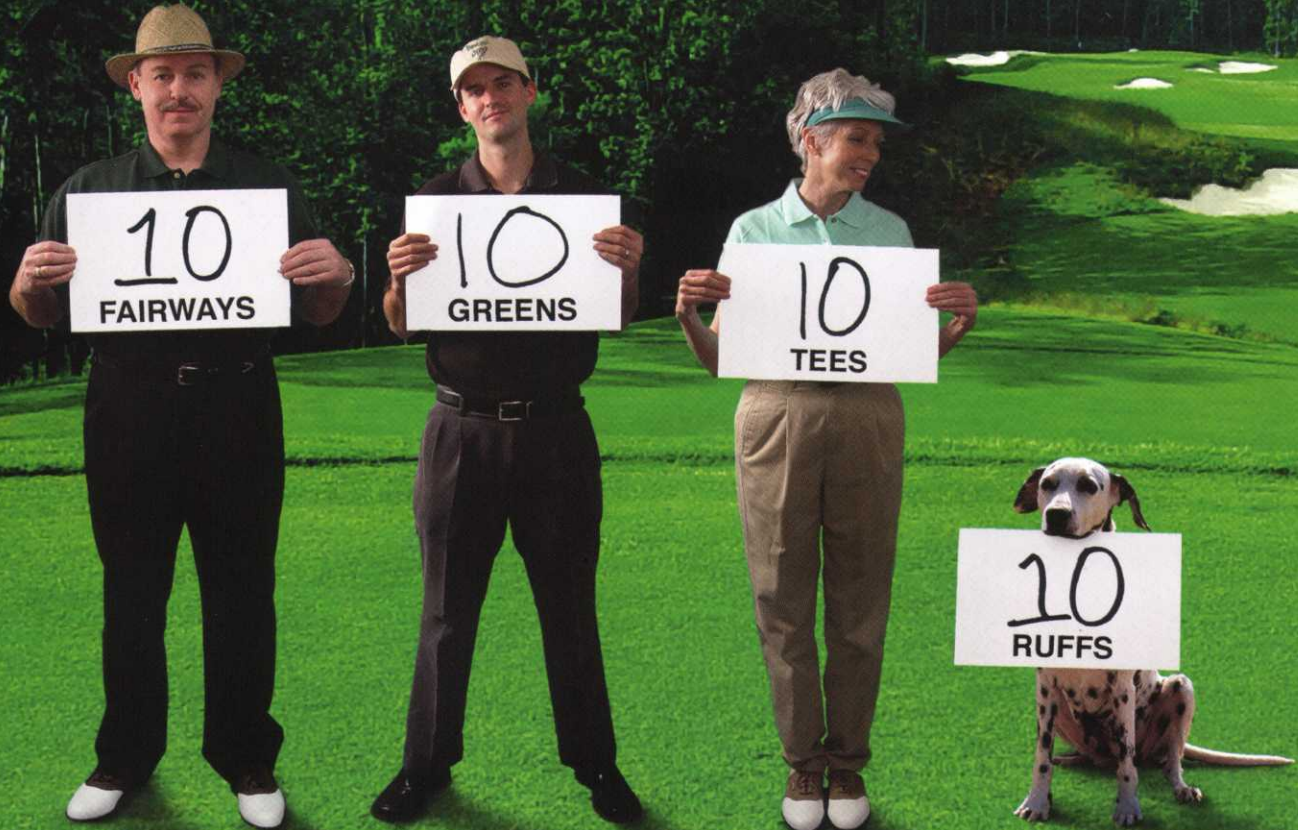


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About the Cover:

Superintendent Eric Hansen recounts the record-setting flood of 2009 at Rose Creek Golf Course in Fargo, North Dakota. The picture on the cover depicts the work being done in anticipation of the flood. (See complete story on Page 14).



Gene Hugason, second from left, Commissioner of the Minnesota Department of Agriculture, commended the dedicated service to the Turfgrass Phosphorus Fertilizer Training Program by the Minnesota Golf Course Superintendents' Association and the University of Minnesota. The U of M's Dr. Brian Horgan, Ph.D., far left, along with MGCSA Ex-Officio President Rick Traver, Jr., CGCS, and MGCSA Executive Director Scott Turtinen, far right, accepted certificates of recognition on behalf of the MGCSA and the University of Minnesota at the Northern Green Expo in January. (See letter from the Minnesota Dep't of Ag Commissioner on Page 11).

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MGCSA EVENTS

Wednesday, May 12
MGCSA Vendor Appreciation Day
Midland Hills CC, St. Paul
Host: Mike Manthey

Wednesday, May 26
MGCSA Assistants' Spring Mixer
Eastwood GC, Rochester
Host: Jeff Minske

Monday, June 14
MGCSA Scholarship Scramble
Greystone GC, Sauk Centre
Host: Lee Mahnke

Monday, August 16
MGCSA Championship
The Jewel, Lake City
Host: Doug Mahal, CGCS

Thursday, September 16
U of M Field Day
TROE Center, St. Paul
Host: Dr. Brian Horgan

Monday, September 20
**MGCSA Harold Stodola
Research Scramble**
The Classic at Madden's, Brainerd
Host: Scott Hoffmann, CGCS

Monday, October 4
MGCSA Fall Mixer
Minnesota Horse & Hunt Club, Prior Lake
Host: Tom Proshak

Wednesday, December 8
**MGCSA Awards &
Recognition Banquet**
Southview CC, West St. Paul
Host: Jeramie Gossman

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PRESIDENT'S MESSAGE

Hello Emerald Ash Borer!

By Paul Diegnau, CGCS

Several years ago, the Minnesota Department of Ag, Minnesota DNR and the University of Minnesota Extension Service created the Forest Pest First Detector Program. This program has trained over 300 volunteers to do on-site tree inspections for property owners who have contacted the MDA's Arrest-the-Pest Hotline. Volunteers are trained to identify the tell-tale signs of EAB, Gypsy Moth and Asian Longhorned Beetle and then report their findings to the MDA. Officials in other states consider this program cutting-edge, highly innovative and, as such, are copying the program format for their own use. I joined the program in 2008 and recently attended a refresher course here in the Twin Cities. Statistics reveal that Minnesotans have become much more aware of invasive specie threats. The Arrest-the-Pest Hotline(651-201-6684 / 888-545-6684) recorded a mere 116 calls in 2008 but that figure ballooned to 1,814 calls last year. In 2009, First Detectors were dispatched to investigate 228 sites. I am personally looking forward to more site visits during the 2010 season though I hope my expertise will not be needed at Keller GC anytime soon. As the crow flies, we are located 6.5 miles from the nearest infestation site, so the clock is ticking rather loudly! The St. Anthony Park infestation was found rather quickly compared to average discovery timelines so it will be interesting to see where this pest shows up next and how far it has spread.

Here is a very quick refresher and points of interest to help you when approached by members or players with EAB questions:

- EAB cannot be eradicated though its progress can be slowed.
- Infested firewood is its primary mode of transportation.
- The counties of Ramsey, Washington and Houston are under quarantine. No ash material can leave these counties.
- Visual symptoms include thinning of the tree canopy, basal sprouting, bark splitting, D-shaped exit holes, S-shaped galleries and noticeable woodpecker activity.
- Minnesota has over 900 million ash trees so we stand to lose big both economically and environmentally.
- Begin insecticide treatments if your trees are within 10-15 miles of a known EAB infestation and you wish to save them.

* * * *

It is that time of year again. The Minnesota State Legislature is back in session!

Who knows what bills will be introduced in 2010 but be assured that something that affects our industry is sure to develop. We are fortunate to have Paul Eckholm, CGCS, Jack MacKenzie, CGCS, and the newly formed Turfgrass Government Affairs Committee keeping an eye on the current activities at the Capitol. If the call goes out, please make time to participate in the process. As an Association, we can have a tremendous impact on the direction that new legislation takes. The phosphorous fertilizer ban of 2005 was a perfect example of this. Several MGCSA members testified before legislators and were able to convince them to exclude golf courses from the ban. This month's *Hole Notes* issue contains a letter to MGCSA from the MDA that congratulates us on the successful working relationship developed between the two groups over the phosphorous issue. Let us not forget the role the University of Minnesota played in creating the educational certification component that allows us to apply phosphorous. Speaking of the U of M, make sure to check out the Brian Horgan/Carl Rosen article in the February issue of GCM. The article, entitled "Restricting phosphorous fertilizer use" recaps the progression of phosphorous legislation in Minnesota from the local level beginning in 1985 to the state level in 2005. The article emphasizes the success of working hand-in-hand with regulatory agencies. It makes a wonderful template for things to come.

Spring is almost here and I can imagine most of you are getting antsy, ready to face the challenges of another golf season. If there is little to no frost in the ground, as I keep hearing, it could prove to be an interesting "unveiling" this spring. Time will tell. Until next month...

- Paul Diegnau, CGCS

HOLE NOTES

Official publication
of the MGCSA

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When Mother Nature Calls

By MIKE SONNEK
Assistant Superintendent
Spring Hill Golf Club

It was Saturday evening August 8th and I was in Stillwater at the ice arena watching my daughter play hockey. That is not a typo, 12-year-old girls are playing hockey in August in Minnesota, but that's another story. Anyway, I stepped out to the lobby between periods to see Bel Jensen of KARE 11 on television pointing to a mass of colors on the radar and throwing out terms like "hook echos." As I moved in a little closer I heard Bel say that there was a tornado in the Plymouth area. She went on to say it looked like the tornado touched down in Minnetrista traveling northeast through Orono and Long Lake and on into Plymouth.

My first thought was oh great, she basically described a tornado path going right through Spring Hill Golf Club. Of course, Superintendent Tim Johnson who lives just a few miles from the property happened to be out of town that weekend so it was my responsibility to check out what the tornado left behind. I told the Mrs. that I was going to have to skip the 3rd period of the hockey game and make the trek across the metro to check out the golf course.

As I headed to my car the threatening skies were moving into the Stillwater area and the lightning show to the west was incredible. My journey to Long Lake included periods of zero visibility due to the deluge of rain, hail, high winds, and the most impressive display of lightning I have ever seen.

With the meteorologists on the radio screaming of Armageddon, I expected to find the worst. I was within two miles of the course and I was relieved to see very little damage. Leaves and some small branches were down, but nothing like I was expecting. Things looked good until I was about a 1/4 mile from the course. At that point I came upon some brake lights and a police car blocking the road, definitely a bad sign. I walked up to the officer and asked him what was up. He said "power lines are down and the road is closed." I then told him who I was and if he had heard of any damage at Spring Hill. He said "I think that is where they were saying the tornado touched down, on the golf course." Not the news I wanted to hear.

I got back in my car and proceeded to back track to see if I could get to the golf



Mike Sonnek, Assistant Superintendent at Spring Hill Golf Club, showing the "Ghost Tree" logo.

course from the west side. Now my thoughts were is the clubhouse standing? What about the shop? As I drove around Long Lake I was still surprised by how few branches were down. I have never been around tornado damage before so my expectations were to see much more damage in the area. I was able to reach the entry to Spring Hill from the west and I was relieved to see no signs of damage around the clubhouse. I then headed towards the maintenance shop which is a little less than a half of a mile from the clubhouse entry. I soon learned a lot can change in that short distance as far as tornado damage is concerned.

I pulled up to open the gate to the maintenance shop and saw that I needed to maneuver my car around a couple of trees that were down in the entry drive. It was very dark but I could see the maintenance facility was still standing, huge relief! I could make out a bunch of objects scattered around the yard in front of the shop. A closer look revealed that it was our trailers we use to carry our walk mowers around the golf course. When I had left work earlier that day the trailers were all lined up in their usual spot but now they were all scattered around the yard in a circular pattern. I opened the door to the maintenance shop and the first thing I did was look up to make sure the roof was still there, more relief. Our main facilities had made it through undamaged, so I started out on the cart path to take a quick look around the course. After driving about 300 yards I came to a tree across the path and at this point I decided to head home and I could only imagine what I might find in the morning. I was surprised that I had arrived home before my wife and daughter who I left behind at the hockey game. They told me of all the excitement they had in Stillwater after I



The tornado left its mark in a few places at Spring Hill.

(Continued on Page 6)

Tornado at Spring Hill -

(Continued from Page 5)

left. At the end of the game a tornado warning was issued in the Stillwater area so the girls and all of the parents and others in the building spent close to an hour sitting in the locker rooms of the St. Croix Rec Center. The locker rooms are the

"The other amazing part of this picture was that a large, long dead oak on the 13th hole was still standing, right in the middle of this path of wind damage."



The tornado had touched down in the wetland and had completely flattened the cattails in a line about 100-200 yards wide. At several spots in this area the cattails were twisted together to look like little cones or teepees. Just out of this photo, to the left, is a large, dead oak tree that defiantly stood its ground. This damage was between No. 7 and No. 13.

storm shelters for the facility during tornado warnings.

I arrived at Spring Hill early the next morning and found that we had lost about 12 trees to the storm. The bulk of the damage was confined to a narrow line across our 7th, 13th and 12th holes. As I pulled up to the tree damage I

looked over to see an amazing sight. The tornado had touched down in the wetland and had completely flattened the cattails in a line about 100-200 yards wide. At several spots in this area the cattails were twisted together to look like little cones or teepees. The other amazing part of this picture was that a large, long dead oak on the 13th hole was still standing, right in the middle of this path of wind damage. The oak looked defiant standing in the path of the storm while healthy trees on the other side of the fairway had been brought to the ground. The sight of the tree standing in the path of the storm became quite the buzz around the course. The boys of the proshop decided the dead, defiant oak was now to be known as the 'Ghost Tree.' They even went so far as to have some shirts made up embroidered with the trees image. It had reached folklore status.

That morning we did enough cutting to open up the cart-paths and clear branches off of one of the tees on #12. I did want to thank Jim Ostvig and his crew for coming out on a moment's notice on a Sunday morning to drop some hanging branches. Without their help we would have had quite the cart-path detour for our members. The course was closed on Monday so we had a good day to get everything cleaned up and back to normal. When the staff showed up on Monday they were quite surprised to hear about my busy weekend and see the results of the storm. Tim made it back in the afternoon from being out of town and unknowingly asked how the weekend went. Of course, being the wise a-- that I am, I told him it was a pretty quiet weekend, other than the tornado! We were extremely fortunate. The path of the tornado through the wetland was only about a 100 yards north of our maintenance shop.

Three days later the National Weather Service concluded that an F1 tornado (73-112 mph winds) had touched down at 8:30 p.m. August 8th and stayed on the ground for roughly 9.5 miles with an approximate width of 200 yards. I have the pictures to prove it!



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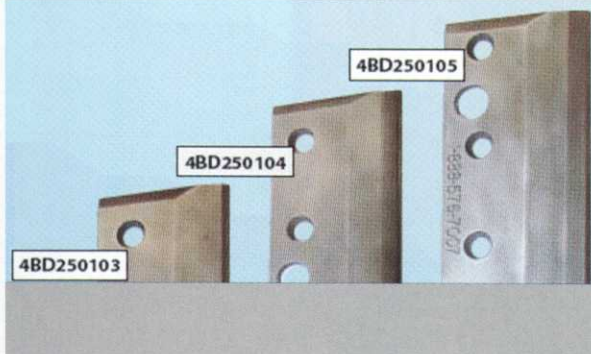
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LIGHTNING

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In the United States, there are an estimated 25 million lightning flashes each year. During the past 30 years, lightning killed an average of 58 people per year. This is higher than 57 deaths per year caused by tornadoes and average 48 deaths to hurricanes. Yet because lightning usually claims only one or two victims at a time and does not cause mass destruction of property, it is underrated as a risk. While documented lightning injuries in the United States average about 300 per year, undocumented injuries are likely much higher.

Watch for Developing Thunderstorms

Thunderstorms are most likely to develop on spring or summer days but can occur year round. As the sun heats the air, pockets of warmer air start to rise and cumulus clouds form. Continued heating can cause these clouds to grow vertically into towering cumulus clouds, often the first sign of a developing thunderstorm.

When to Seek Safe Shelter

Lightning can strike as far as 10 miles from the area where it is raining. That's



with electricity. Stay away from pools (indoor or outdoor), tubs, showers and other plumbing. Buy surge suppressors for key equipment. Install ground fault protectors on circuits near water or outdoors. When inside, wait 30 minutes after the last clap of thunder, before going outside again.

Helping a Lightning Strike Victim

Lightning victims do not carry an electrical charge, are safe to touch, and need urgent medical attention. Cardiac arrest is the immediate cause of death for those who die. Some deaths can be prevented if the victim receives the proper first aid immediately. Call 9-1-1 immediately and perform CPR if the person is unresponsive or not breathing. Use an Automatic External Defibrillator if one is available.

Summary

Lightning is dangerous. With common sense, you can greatly increase your safety and the safety of those you are with. At the first clap of thunder, go to a large building or fully enclosed vehicle and wait 30 minutes after the last clap of thunder before you to go back outside.

about the distance you can hear thunder. If you can hear thunder, you are within striking distance. Seek safe shelter immediately.

Outdoor Activities

Minimize the risk of being struck. Most lightning deaths and injuries occur in the summer. Where organized outdoor sports activities take place, coaches, camp counselors and other adults must stop activities at the first roar of thunder to ensure everyone has time to get to a large building or enclosed vehicle. Leaders of outdoors events should have a written plan that all staff are aware of and enforce.

Indoor Activities

Inside buildings, stay off corded phones, computers and other electrical equipment that put you in direct contact

ASSISTANTS' SPRING MIXER

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When Thunder Roars, Go Indoors!

By RITA McKENZIE

Urban Forester, Dept. of Forestry & Natural Resources, Purdue University

FACT: Lightning kills more people than tornadoes and hurricanes.

FACT: Most deaths occur in open fields near or under trees or around water.

FACT: Lightning strikes the earth somewhere 100 times every second.

FACT: The temperature of a lightning flash can be 30,000 degrees Celsius - five times hotter than the sun.

FACT: Peak currents can be 20,000 amps.

Lightning occurs when strong negative charges in low clouds and strong positive charges on the ground meet in the air. The negative charges in the clouds move onward in a series of chain reaction steps called stepped leaders. The return stroke occurs when the positive charges in the ground are attracted by the negative charges in the air. This upward path is called a streamer. A lightning strike takes place when these paths meet in ionized air. We don't see these two parts of a light-


ning strike because the leader stroke takes about 20 milliseconds and the return stroke 70 microseconds. A widely held myth that lightning only strikes good conductors like metal is not true. Lightning seeks the path of least resistance to the ground through the best available conductor in the area such as wood or metal. The difference between a good and bad conductor is that good conductors are not damaged as severely as bad conductors.

Trees, because of their height, are natural lightning rods. Damage can be minimal or quite literally explosive. Since water or sap is a better conductor than wood, lightning damage is often related to the concentration of moisture in and around a tree. For instance, if the moisture is concentrated in the phloem between the bark and the wood, then the lightning strike will follow this channel and create an explosive separation of the bark. If


there is more moisture in the center of the tree, the explosion from within may blow the tree apart. Yet, rain-soaked bark often shows little damage because the lightning may follow the outside of the bark and flow into the ground. Internal tree structure, such as spiral grains, can induce a spiral pattern on the outside of the bark as the lightning follows the moisture within the tree.

Death of a tree from a lightning strike per se, is not easily diagnosed. Some trees die immediately from seemingly small external damage while others will live for a number of years. One of the problems with a lightning scar (loss of the protective bark) is the inherent problem of exposing the tree to insects and diseases. If a tree survives a strike, it often succumbs to these secondary problems. A tree struck

(Continued on Page 10)






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Lightning and Trees-

(Continued from Page 9)

by lightning has been stressed severely. The intense heat of the strike takes a great deal of energy from the tree. To deal with stress, trees need additional nutrients. Studies have indicated that additional water after a strike may assist the tree in absorbing many nutrients from the soil.

Preventing insect and disease problems also may help reduce future stresses, but painting the lightning crack with wound paint is not a recommended practice, in fact it may worsen the situation by providing a conducive environment for harboring insects and disease-causing organisms.

To prevent lightning damage to special trees in your yard or community, a lightning protection system may be installed. This is accomplished by attaching a series of copper cables to the tree's highest branches and then grounding them a safe distance from the tree. If lightning strikes the tree, the current flows down the cables and safely to ground. If interested in a lightning protection system, consult with an arborist.



Lightning damage to a tree by the 5th hole at Hazeltine National Golf Club.

When a Tree Is Struck By Lightning

By JACK MacKENZIE, CGCS
North Oaks Golf Club

When a tree is struck by lightning, the liquids inside the trunk and bark turn to gas instantly, leading to high pressure and literally explosion of anything that is between the gas and the open air.

Usually, the lightning current runs just underneath the bark, down to ground, and the tree is scarred by a strip of blown-away bark. It usually survives such a strike.

Sometimes, the current may run down near the center of the trunk, and then there may be little left of the tree afterwards. Lesson to learn...don't seek a tree for protection from lightning!

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