

EDUCATION RECAP

Charles Anfield, CGCS, *Heritage Bluffs Golf Course*



Dr. Dernoeden Highlights the March Meeting

The MAGCS March Meeting was held at the Golf House in Lemont. Dr. Peter Dernoeden was the featured Speaker. Dr. Dernoeden is currently teaching and doing his research at the University of Maryland. He led off the day making his presentation "The Nature of Dollar Spot and Its Management: Research Meets Reality". Just when I thought I knew it all, there were a lot of interesting tidbits of new information from Dr. Dernoeden's research.

Back in the mid 1990's dollar spot became a larger disease factor when courses started seeding bentgrass instead of ryegrass. Dollar spot is the most economically important turfgrass disease worldwide. The pathogen was described by F. T. Bennett in the U.K. in 1937. *Sclerotinia homeocarpa* was named after the size of U.S. Silver Dollar.

What we know about the pathogen:

- It is spread by mycelium in infected tissue.
- It just seems to "come and go", May through December.
- There are no effective predictive models. We have rough estimates based on temperature and humidity.
- Most research has been confined to resistance management.
- All cultural and bio control has occurred over the last 15 years.

Maryland research has been focused on fairways. This is where most of the bentgrass acreage is and where most of the money for disease control is spent. Even most of the resistant disease cultivars still get the disease, just later. Maryland measured dew formation and duration, humidity, temperature, leaf wetness. Dr. Dernoeden has concluded that dollar spot seems to follow "epidemic outbreaks", although he's not sure why.

- The first outbreak is slight pressure. This normally occurs mid to late May when average temperatures are in the mid 60's.
- The second outbreak occurs late July and early August. This is more severe and lasts longer.



Dr. Peter Dernoeden

- The third outbreak occurs in mid October. This outbreak hits fast and hard and has a short life.

Dr. Dernoeden's basic approach to disease management is a three pronged attack.

CULTURAL

NTEP Trials are a good source of information in which to select disease resistant varieties to inter seed with. He cautions to only select trials for comparisons with "like" growing conditions. Different trials perform differently in different locations. Disease resistance is relative. It does not apply immunity.

Nitrogen is the only nutrient that impacts the disease. Phosphorous and Potassium have no effect. This is true in all soil conditions and under all fertility levels. He has found that

no nitrogen source has proven statistically to be better than the others. There is no correlation of soil microbial activity to dollar spot control. Spoon feeding has provided benefits, keep doing it. It is good agronomic practice. To "pump up" the fertility to grow out of the disease with large doses of nitrogen is not a good idea. Keep applications at a pound of N per thousand or less. He has found numerous benefits to applications of ammonium sulfate. There is an increased burn potential but a few minutes of water following an application will alleviate the problem. He recommends up to 3 lb. per year to reap the maximum rewards of the product.

Irrigation studies have concluded that when you water doesn't really matter during the first epidemic. If you have dry soil during the second epidemic this will increase the dollar spots damage potential. Light and frequent applications of irrigation have shown to decrease dollar spot and improve the performance of fungicides.

Early morning mowing has shown to reduce dollar spot and may be the most effective method of decreasing the severity of the disease. Just mowing alone will reduce disease by 25%. The ability of dollar spot control has been increased with mowing prior to fungicide applications by reducing severity by 55-65%.

BIO CONTROL

Bio control has not proven to be an effective form of disease control.

CHEMICAL CONTROL

Fungicides are an expensive form of control, but they do work. Be aware of potential resistance by using the same class of fungicide repeatedly. Use a rotational program. Spray volumes don't matter for control.

Denoeden's Tips for the Right Way to Treat Dollar Spot Control

- Use 1-2 gallons of water volume per thousand.
- Fine droplets provide better control.
- Mow before you spray.
- Keep soil moist prior to second epidemic.
- Spoon feeding helps control disease.
- Early spring fungicide applications can delay onset of disease in northern climates.

- Always rotate fungicides.
- Use Chlorothalonil or Emerald in between high risk products.
- Always tank mix for curative control.
- Low fungicide rates are fine during low disease pressure. Increase rates when pressure is higher.

The second presentation featured our own Keith Rinker, MS of the CDGA, on Fungicide Programming for Dollar Spot Control.

Keith's presentation featured results from his own 2008/2009 research at the CDGA Golf House and on site trials at North Shore Country Club and Coyote Run Golf Course. Keith compared several spray programs based on cost, disease control between contacts and systemic and overall effectiveness.

The Programs:

- CDGA Bookend Program
- Curative Program with Daconil
- No Treatments
- Daconil 14 Day Program
- Three Way 21 Day Program

Some highlights:

- Coyote Run being a public course had higher disease tolerance levels
- Effectiveness varied between programs
- Costs per day were compared

A bio rational product called dew cure was used at North Shore C.C. The concept is to "wick away" the dew and help

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prevent disease. There were some positive benefits of the program by being able to reduce the number of chemical inputs but was not proven to provide acceptable standards compared to the "norm" of a normal chemical spray program.

Dr. Dernoeden made a presentation on some research he has made on the newer herbicide Tenacity.

Tenacity is a reduced risk herbicide. It's made from the Bottle Brush plant. Its mode of action is foliar and root uptake. It results in the bleaching of the plant leaves and works by preventing the carotenoid synthesis in the plant. It's a "niche" product mainly used in seed beds for spring seeding to prevent crabgrass, nutsedge and pigweed. It's safe for Kentucky bluegrass, fescue and perennial rye. **It kills bentgrass.**

It needs to be applied twice and is slow acting. Most damage is observed after the second application.

Use on golf courses may include:

- To remove Bent in rough areas of Kentucky bluegrass
- To remove Bent in fairways of Kentucky bluegrass
- Controls Nimblewill
- Controls Yellow Nutsedge
- Controls Crabgrass
- For populations where the bentgrass contamination is very low (less than 10-15%)

Be sure to accurately assess the amount of bentgrass in the area spraying. This stuff does work. If too much bentgrass is in site, it may be better to re-sod.

Dr. Dernoeden came back after lunch for his presentation on "Managing Greens under Summer Stress".

The primary loss of turf during the summer is premature senescence. Typically this is a result of a poor growing environment, improper irrigation and mechanical injury. Typically 50% of the turf samples he handles are negative in pathogens. Wet soil, which rapidly kills roots, is the number one culprit in failed greens.

Summer Decline Complex Management Techniques:

- Stop grooming for green speed
- Syringe or hand water to reduce stress and put the water where you need it
- Use fans
- Spoon feed on 5-7 day intervals with urea
- Apply Signature/Daconil or other phosphate products (This has proven to provide some protection against mechanical damage)

Wet soil, which rapidly kills roots, is the number one culprit in failed greens. Too much water kills more greens than being too dry. Wet soils absorb and retain more heat and have lower levels of oxygen. Signs and symptoms include: wet wilt, scalding, black layer, moss and algae. The wet soil accelerates the root loss. Mechanical damage which causes bruising and scalping often follows when mowing wet turf. This is often underestimated in the amount of damage inflicted. A good indicator of wet greens is deep pitch marks. Often, chlorosis or yellowing is also an indicator of wet greens. If soil temperatures of greater than 86 degrees are sustained, roots will turn brown, shorten and turf decline is eminent.

Wet wilt is the inability of the plant to take up water despite plenty of water in the soil. This also promotes stomate

closure which inhibits the ability of the plant to cool itself. This effectively shuts down the plant retarding respiration and the plant suffocates.

Syringing has been proven to cool turf plants. Applications should be around 3-5 minutes per green. This opens the stomata's and promotes cooling within the plant. Fans have proven to be very successful in conjunction with syringing. Spiking and solid tinning promotes drying and improves aeration.

Scalding is a direct kill of the plant. This occurs when the turf is inundated with water on a hot sunny day. This often happens from a thunder storm. Get the water off with squeegees ASAP. There is also the possibility of mower injury due to the standing water. Avoid mowing with standing water and high temperatures.

Thatch management can help prevent "puffy" turf conditions. The thatch can get wet from rain and hold onto moisture during humid periods. The plants get elongated and grow adventitious roots. The thatch swells, mowers sink into the thatch and scalping occurs. Urea at .15 lb/N/M every 14 days helps mitigate scalping. Rooting in summer is influenced by making holes. Proper aeration will promote good drainage. Use a wide diameter core in the spring and fall. Heavy top-dressing with sand should make to fill the holes. Aerate in the summer with smaller tines 3-4 times. Continue with a light frequent topdressing program.

The "Basics" of Summer Bentgrass Decline Complex Management:

- Increase mowing heights
- Decrease mowing frequency
- If wet, make holes, get oxygen in soil
- Don't mow when soil is saturated.
- Improved drainage
- Spoon feed
- Communicate and maintain support Team

Dr. Derek Settle of the CDGA completed the very informative educational day with his presentation on "Control of Common Diseases of Chicago Greens – Waitea and Fairy Ring".

Waitea affects annual bluegrass during periods of cool and wet conditions. Mostly it is a cosmetic disease typically seen here in the Chicago area in May and June. Derek conducted trials at Biltmore country Club with Brian Thompson, CGCS and has had good control using Insignia, Banner, Bayleton, Triton and Prostar. He showed slides of the disease but he best describes it as looking like your turf got spray painted with yellow paint in a 12 inch diameter circle.

Fairy ring is the other disease Derek has been working with which he thinks favors drier weather for development. It can become more than a cosmetic problem as the rings may grow mushrooms and become hydrophobic. He worked with Dan Marco, CGCS at Ruth Lake Country Club in 2009 for his trial work. He had good success with different curative treatments using DMI's. He recommends aerifying to promote water infiltration and to disrupt the pathogen. He also recommends using spray applications of urea to mask the symptoms. He believes the disease is caused by low fertility situations.

Another great day of education put on by the MAGCS Education Committee to help you in your job. **-OC**