EDUCATION RECAP

Charles Anfield, CGCS, *Heritage Bluffs Golf Course*

Dr. Danneberger's Turf Diatribe

Dr. Karl Danneberger, a self professed rambler and Illinois native, offered keen insight and shared his experiences and turf travels with the Midwest.

The Midwest March meeting was held up near the northern border of Illinois, at the frozen turf of The Royal Melbourne Country Club in Long Grove.

MAGCS President Dave Groelle, CGCS was the host. The weather this year was quite a change from last year's meeting. You may recall it was near 80 degrees! Dr. Karl Danneberger, Professor of Turfgrass Science in the Department of Horticulture and Crop Science at Ohio State University was the featured speaker. His focus is turfgrass ecology and physiology.

An old extension professional, Dr. Danneberger described himself as a "self-professed rambler". He spent some time sharing philosophies, car stories, analogies and just doing a great job educating and generally entertaining the MAGCS members with his golf course maintenance observations and results from some of his research. He did a great job covering many topics throughout the morning, some, I've gathered here.

Golf course superintendents seem to share the same philosophy and attempt to manage their turf "on the edge of failure." This comes as we try to provide turf that is fast, firm and green as the most optimum of playing conditions. The difference between excellent conditions and poor conditions can be a very fine line; and this line can change very quickly because we don't always know when to back off. We tend to manage our turf to extremes. Some examples of these extremes are:

- environmental fluctuations (high and low temperatures, high and low humidity)
- low mowing heights
- moisture management

We manage turf with high demands and high expectations from our players. Higher inputs always require higher costs and come with higher risk to plant health.

One study, Dr. Danneberger explained showed that injury on putting surfaced increased as green speeds became greater.

- 60% injury observed to turf managed at speeds over 10.5 feet
- 100% injury observed to turf managed at speeds over 12 feet

Dr. Danneberger dispelled rumors of higher stimpmeter speeds using special golf balls by conducting a research project with many different golf balls. He found no quantifiable difference using different balls to measure stimpmeter green speeds. Sorry Topflite.

Green firmness is never static. It is always in a state of fluctuation, greens are either building or losing firmness. It is a combination of organic matter and soil moisture, both items that fluctuate as time passes.

Most green agronomic problems can be related to low light situations. Dr. Danneberger went into scientific detail on the specifics of photo quality and photo quantity. Cool season grass can only "take so much light."

Dave Groelle, CGCS (l) welcomes Jeff Leuzinger as he checks in for the March Meeting at Royal Melbourne.

Pigments are one of the "hot" new products out there for use on turf. They can be used as a spray indicator, mask Poa annua and colorize dormant turf. They function by absorbing, transmitting and reflecting specific light wave lengths. They can be used as an anti- transparent to reduce water use. The darker color of the pigment can also increase the temperature and raise the canopy temperature. Zinc oxide in the pigments can act as a "sunscreen" and protect the plant from excessive ultra violet rays from the sun. Past research has shown benefits from pigments in specific products and current research hopes to explain more of the things we are seeing in practice.

The difference between dyes and pigments is that dyes are water-soluble. An easy way to tell if you are using a pigment is that it must remain agitated to stay in suspension in the spray tank.

Pigments are mostly copper based. Copper does not readily break down in the soil. Does a copper build up in the soil hurt the plants? Does the pigment reduce the active ingredient in the spray formulation? Does it decrease the photosynthetic ability of the plant? We don't know. It is not always clear what pigments are doing to the plant. Dr. Danneberger will be conducting research this summer to further answer some of the pertinent questions regarding pigment use. Stay tuned.

Notes from the Shade Talk

Shade influences the overall look, agronomics and playability of golf course. Shade can potentially create a 90% drop in light quality. Not good for grass. Bentgrass needs at least six hours of sunlight per day to sustain quality. Shade alters light quality which can influence and modify plant growth.

Plants with adequate sunlight = short, prostrate, thick, wide leaves, deep roots. Plants with shade issues = tall, elongated, thin leaves, more succulent, less tillering, fewer roots. This can lead to scalping problems when too much foliage is removed from cutting greens in the shade.

Green management in a shady location requires a different plan than for a green in the sun.

- Walk mow instead of ride
- Roll instead of mow
- Use Signature or like product
- Growth regulators can mitigate Etiolation
- Use .10 lb./N per week during growing season
- Avoid large nitrogen applications
- Increase height of cut. Fractional changes can make a big difference
- 0.141" to .156" creates a 12% increase in photosynthetic potential.
- 0.125" to .156" creates a 25% increase in photosynthetic potential.

Airflow is a very important component of shade sites. With no transpiration, shaded site stays wet because water applied goes nowhere. Low sun exposure + Low air movement = bad ending.

To reduce potential for problems:

- Trim trees and remove underbrush
- Don't over water
- Increase H.O.C.
- Decrease nitrogen applications by 50% versus a sunny site
- Fertilize when trees do not have leaves (early spring or late fall)
- Start early with disease prevention/control.
- Fans can be very helpful to increase transpiration. Install as close to green as possible.Grow lights have a minimal impact

Thanks to the MAGCS Education Committee and our hosts at Royal Melbourne for providing a great day of education.