

EDUCATION REVIEW

Charles Anfield, CGCS, *Heritage Bluffs Golf Course*

Control Your Water, Control Your Results



The April MAGCS meeting was held at Naperville Country Club with Tim Anderson, CGCS, MG as the host. Larry Lennert Territory Manager for Aquatrols made a presentation, "Control Your Water, Control Your Results".

Statistics reveal that by 2013, 36 out of the 50 States within the United States will experience water shortages and overall increased demand. Water use efficiency will become a more and more prominent issue.

A Great Lakes Water Compact was created in 2008 to bind States bordering the Great Lakes and Canada with water use restrictions. The Compact specifically limits diversions of water outside the Compact area. It requires eight States and Canada to develop water conservation programs. Regulations will be coming our way soon and Best Management Practices (BMP) will be required.

Golf courses need to use water to irrigate turf. There is no escaping that fact. What we can do is attempt to become more efficient with our water use.

Irrigation efficiency benefits include:

- Minimize under watering and over watering
- Grow healthier turf
- Save electricity, water and dollars
- Provide better playing conditions

There are four components to Irrigation Efficiency.

1. Apply water as uniformly as possible. (DU: distribution uniformity)
2. Irrigation precipitation rate less than soil infiltration rate
3. Irrigation to bring root zone to field capacity
4. Uniform infiltration and distribution of applied water

(continued on page 33)



One way to quantify DU is to measure it with "catch cans". These can be any size, larger with deeper sides are better to avoid loss from splashing. Larry recommends purchasing Tupperware containers 6"x 8"x 4", or you can purchase commercially made catch cans. They just all need to be of the same size. You will need at least 24 containers. For greens the spacing should be 15 feet. For fairways the spacing should be 25 feet.

- DU is a ratio: $\frac{\text{Beneficially used water}}{\text{Water applied}}$
- This should ideally equal 1.
- A ratio of over 80% is considered excellent.
- A ratio of less than 55% is considered poor.

To improve DU, take steps by answering these questions:

- Are the heads the correct size for the area?
- Is the head spacing correct?
- Are the nozzles worn? Replacing worn nozzles is the cheapest fix.
- Are the pipes the correct size?
- Is the head pressure correct?

Measuring soil moisture is another way to quantify watering efficiency using TDR (Time Domain reflectometry). This is a newer, very reliable technology being used. It is a wireless hand held tool and can be purchased from a variety of suppliers. It provides information on field capacity and specific wilt points for specific soils. Basically what it does is identify areas that need supplemental irrigation. It replaces the low tech method of pulling a core and looking at it to see if it's wet or dry. It can help improve effectiveness of hand watering by measuring soil moisture consistency across a selected turf area.

Water repellency in soils is another problem for turf managers. Hydrophobic soils can be very problematic affecting plant hydration and water distribution. It can severely decrease irrigation efficiency. It is caused by the decomposition of organic matter in the soil. The roots exude organic acids and the acids coat the soil particles. The acid accumulation inhibits the soil to wet uniformly and decrease overall water penetration.

A water drop penetration test (WPDT) can be performed to access soil hydrophobicity. Remove a soil core 4-6" deep from desired soil area. Dry it out for a week. Use an eye dropper and put a drop of water at 1" spacing and measure how long it takes to infiltrate the soil sample. If it takes more than 5 seconds there is some degree of repellency.

Wetting agents and soil surfactants can assist in regaining water penetration and uniform distribution.

The wetting agent attaches to the organic coating on the soil particle and helps reestablish soil polarity undoing the repellency and improving infiltration. A study at Ohio State University in 2002 by Surfactants can reduce run off by 20% or more.

For more information about controlling your water or an irrigation audit, contact Larry Lennert at: llennert@aquatrols.com. -OC





**Delivers
brains
and
brawn.**

CAN A UTILITY VEHICLE
REALLY DO THAT?

Vehicles that go where you need them to go, doing the jobs you need them to do, day in, day out, without problems. Brains and brawn. Now available in utility vehicles.

Nadler Golf Car Sales, Inc.
2700 N. Farnsworth Ave.
Aurora, IL 60502
Call: 630-898-1616 for Eric, Chad or Dave
www.nadlergolf.com

YES, IF IT'S A 

1 800.CLUBCAR • clubcar.com