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Understanding The Different Wetting Agent Chemistries

A surfactant is a wetting agent but a wetting agent may not be a surfactant. Surprised?

*by **Stanley J. Zontek** and **Dr. Stanley J Kostka***

(Left) Note the dew pattern on this wetting agent and soil surfactant test area. While a wetting agent is a surfactant, it only wets. A surfactant can do more than just rewet the soil. (Right) Dry spots and uneven wetting can be a problem on any area of the golf course, including greens, tees, roughs, and, in this case, a fairway. While all soil types can become hydrophobic, sandier soils (which inherently hold less water anyway) seem to have the most severe problems. While there is a trend towards "firm, dry, and fast," there are situations where turf suffers permanent wilt. Turf loss is the result, especially when golf carts drive through wilting grass. Wetting agents and soil surfactants can be used to rewet the area, allow for more even soil wetting over time, and keep the problem from reoccurring in the future.

Wetting agent: "Any compound that causes a liquid to spread more easily across or penetrate into the surface of a solid by reducing the surface tension of the liquid."

Today's golf course superintendent has a dizzying array of wetting agent products available to purchase. As a general class of turf care products, wetting agents are one of the more frequently used on golf courses. Common sense would suggest that not every surfactant or wetting agent is the same. Ironically, all of our turf care fungicides, herbicides, and insecticides are organized into their own classifications, i.e., the DMI fungicides, the strobilurins, the phosphites, etc. Wouldn't it be nice if we could also group wetting agents and surfactants into the appropriate category of the different chemistries from which they are derived? That is the purpose of this article.

Over the years, there has been a gradual change in the type of soils used for golf course construction and maintenance. We have evolved from using the old, blended topsoils of years ago (typical manufactured topsoils were 1-1-1 by volume mixes of sand, soil, and peat) to near straight sand soils used today. Sandier soils are used for the construction of greens and tees and even sand capping of fairways. The same sandier soils are used for topdressing of these areas as well. Sands have replaced soils. That's the bottom line. Sandy soils tend to naturally be, or become, hydrophobic (water repelling) in contrast to topsoils, which are less so inclined. One

of the most frequently asked questions of USGA Green Section agronomists is, "Which is the best wetting agent product to use?" In a word, it "depends."

Read the rest of this article

Turtles: Ancient Wildlife On Your Golf Course

USGA-funded research shows that golf course wetlands can play an important role in helping conserve these ancient reptiles.

*by **Dr. Jeff Nus**, USGA Research*

As urban areas are expanding worldwide, new approaches are needed to provide adequate habitat for viable freshwater turtle populations.

Turtles are in trouble. Although this ancient group of reptiles has existed for over 220 million years, today nearly half of the approximate 300 turtle species are threatened or endangered. The situation is even worse when just freshwater species are considered, where 56 percent of those species are at risk. In the face of an ever-expanding urban population that eliminates much of their habitat and fragments the rest, wildlife biologists are searching for ways to slow or reverse this trend.

If your golf course has ponds or other wetland features, it is likely that turtles live there. In the urban environment, golf courses often are the predominant gre en space - protected green islands surrounded by busy streets, residential housing, and traffic congested businesses. However, is the habitat value of golf course wetlands good enough that golf courses can help conserve turtles, which are increasingly threatened for their very existence in this modern world?

To find out, read the rest of this article

Soil Microbes

Some practical perspectives for turfgrass systems

*by **Dr. David Zuberer**, soil microbiologist, Texas A&M University*

The subject of soil microbiology is often perplexing to many because microbes are invisible to the unaided eye and dwell in an environment where they are rarely observed in their native habitat. That environment, the soil, is perhaps the most complex on earth. Soil microbes live in a world dominated by interfaces. These interfaces are controlled by the interactions of air and water with soil particle surfaces. Most microbes spend their entire existence in thin water films, or biofilms, surrounding soil particles. Yet despite the complexities of this habitat, most soils contain an active, thriving microbial population. In fact, one would have to look long and hard to find an environment completely devoid of microbes. That is not to say that the populations are not affected by their environmental conditions, because they certainly are. In most normal soils, for example turfgrass locations (Figure 1) and agricultural fields, if conditions are suitable for plant growth, it is highly likely there is an active microbial population.

Read the rest of this article

You can also see Dr. Zuberer's presentation by watching the video below. Note that it is a large file and may take a few moments to load.

Watch the video

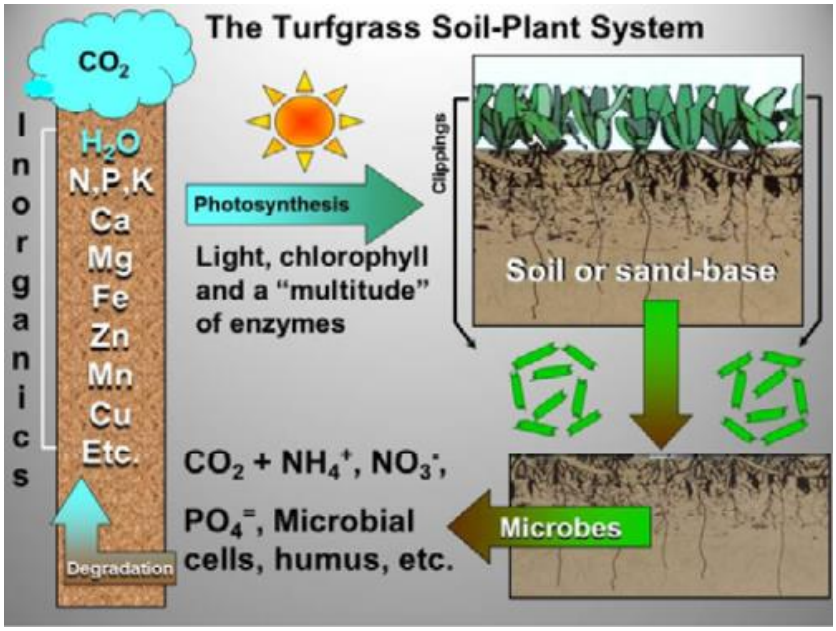

Figure 1. The turfgrass soil-plant system. Plants take up soluble nutrients (N, P, K, etc.) from the soil solution. Carbon dioxide is fixed through photosynthesis and plant biomass is synthesized above and below ground. Grass clippings are removed or returned to the soil. Roots and clippings are decomposed through the activities of soil microbes, and through the process of mineralization organic forms of nitrogen and phosphorus (and other essential elements) are returned to their inorganic, plant-available forms to begin the cycle anew.

Regional Updates

The USGA Green Section agronomists see an amazing variety of issues and challenges as they visit golf courses across the country. Be sure to read the highlights of each region since many of the topics covered apply to courses everywhere.

Mid-Atlantic Region

This update includes:

It is time to play defense. Keith Happ and Darin Bevard offer some summer survival tips.

View the rest of this update

Southeast Region

This update includes:

How hot has it been in the Southeast Region? Pat O'Brien and Chris Hartwiger provide some interesting facts and statistics to help put the year in perspective.

View the rest of this update.

North-Central Region

This update includes:

There is a surprisingly easy, yet very effective technique to improve the health of your putting greens. Bob Vavrek takes a look at a practice that superintendents should employ more often.

View the rest of this update.

Northeast Region

This update includes:

Heat is taking a toll on *Poa annua* greens in the region. David Oatis provides an update on what techniques are helping superintendents manage through this difficult period.

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Northwest Region

This update includes:

After recently working the U.S. Senior Open, Larry Gilhuly discusses why attempting to provide championship conditions can be a bad idea for your course - and your players.

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Florida Region

This update includes:

The rains have continued in Florida. Todd Lowe discusses the impact of prolonged wetness and cloudy conditions on turfgrass health and weed pressure.

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