

EDUCATION REVIEW

Charles Anfield, CGCS, *Heritage Bluffs Golf Course*



June 2012

*Andrew Perry and the Staff of Blackstone Golf Club had the course in outstanding shape to host the MAGCS June Meeting. The education "hot topics" for the day were **Wetting Agents and Foliar Feeding**. Dr. Doug Soldat of the Department of Soil Science from the University of Wisconsin-Madison made the trip south to make the presentation.*

Foliar fertilization is a commonly practiced method for fertilizing turf. It has become more and more of a "go to" method as lighter rates of nutrients can be applied with less chance for growth flushes. Foliar applications are intended for absorption through the plant leaves stomata. Most of the nutrients that are absorbed are actually absorbed through cracks around the stomata. Dr. Soldat explained the stomata are normally closed during the day when people are typically spraying their nutrients. Only about ½ of the fertilizer is absorbed this way. The other half is washed off and absorbed through the roots. Differences in spray volumes, additives of surfactants and adjuvants can also affect leaf absorption. "It's all about the nitrogen. I do a lot of soil samples and I rarely find any significant fertility deficiencies. Most micronutrients are readily available in the soil. Urea is one of the best, most efficient sources of nitrogen. I recommend using low spray volumes and low rates." Studies have proven minimal volatilization loss of nitrogen. I asked Dr. Soldat if he was drinking Dr. Rossi's "Kool-Aid". His reply was negative. "I would never drink that stuff."

So what affects absorption? Humidity, pH, chelating agents and environmental factors can be significant influences. "Chelation is often a misunderstood concept. The word chelation is from the Latin root, meaning claw. Chelation requires two or more separate molecular bonds. Chelating agents are very pH sensitive. Dr. Soldat recommends lowering the pH of the tank mix to 6 or below for maximum benefits.

Localized dry spots have been very common this spring and summer. Many people have been applying wetting agents with the hope that this will help "cure" the dry spots. Those localized dry spots are caused when the soil is allowed to dry down and organic material coalesces around the soil particle, creating a barrier that either has to be re-wetted or removed. Sand is a relatively very large soil particle and seems to be the most susceptible. A clay soil particle is much smaller and less susceptible to this process.

"Wetting agents are typically all marketing, and very little technical information is provided with each product. Formulations are proprietary and not listed as active ingredients on the label," Dr. Soldat explained.

A penetrant is typically used at lower rates or injected into the irrigation system. Adjuvants in the wetting agents can make this product more effective. The goal is to reduce surface tension. At this time there is not enough data on specific wetting agents to make any recommendations. One complaint of wetting agents is the feeling of "squishy" or soft turf with continual use. Dr. Soldat theorizes that the products combine with the waxy organic coating of the plant, furthermore they can bind up organic matter, creating the softness.

Solutions to hydrophobic spots are hand watering, use of surfactants and monitoring soil moisture using probes.

"I highly recommend everyone to purchase a soil moisture probe and use it. Monitor moisture for an optimum of around 10-12% and avoid reaching critical levels." Dr. Soldat stated.

Thanks very much Dr. Soldat on this timely information and if you have any extra rain from up north, would you please send it on down? Doug can be reached for further questions or comments at djsoldat@wisc.edu. **-OC**



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