To water or not to water, that is the question

TODAY, WE LIVE IN A WORLD POWERED BY TECHNOLOGY. It's hard to imagine how people survived without the technology we take for granted every day. Our cell phones, computers, and laptops, what we would do without them? Even the advances in technology within the turfgrass industry have improved dramatically from just 10 years ago. Technological improvements in our equipment, genetically improved turfgrass species, chemicals, fertilizers, and improved irrigation systems. Just think what the future may hold for our industry.

One piece of technology growing in popularity in the turfgrass industry is the use of soil moisture sensors. This type of technology has caught our attention in regards to improving our Environmental Stewardship of our areas, maintenance practices, playability of our varsity athletic fields, and communication between administrators, coaches, and staff at Michigan State University. Through field testing with Toro Turf Guard wireless sensors and daily use of Spectrum Technologies' TDR (time domain reflectometry), this technology is improving the management of our irrigation applications and consistency of the playability of our fields.

Our approach to using the sensors and TDR is establishing optimum moisture content in correlation to our fields playing conditions, during the varsity seasons and off seasons. Through constant monitoring over the years, specific moisture percentages have been established for each of our fields. Daily readings with the TDR tell us if we need to adjust our irrigation for an event or upcoming weather conditions.

This technology takes the guess work out of the age old question of "to water or not to water"? We are able to teach students and staff to access the readings online or take field readings to assist in hand watering, irrigation set up, etc. The first year we used the TDR in Spartan Stadium we reduced our irrigation by one-third. This in turn will reduce the expense of inputs such as fertilizer, chemical applications, and labor. We also have shared this data with administrators and coaches as a tool to communicate field conditions through the four seasons and what expectations are for safety concerns and playability.

In spring 2010, 175 points of data were collected with our TDR at 5-yard spacings to determine distribution uniformity of Spartan Stadiums soil moisture content. With the assistance of software provided by Spectrum Technologies, the data was used to develop a visual representation of Spartan Stadium's moisture content following irrigation. With a 1% crown, the driest part of the field is down the middle, and then increases in moisture content as you get to the edge of

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the field. By collecting this data we can use the information to concentrate cultural practices, such as aeration if needed and watch how the soil changes over time with traffic and organic matter build up, i.e., be most efficient with our time and resources.

Another area of interest in regards to the use of moisture sensors would be in our softball and baseball infield skins. Is it really necessary to flood your infields before a game or to apply smaller amounts building up to game day? Is it possible to obtain optimum playing conditions for your infield while maintaining consistent moisture content? This consistent moisture content would be based around infield materials, evaporation rates, weather and the optimum conditions you've established for your infield.

We have always felt it was important to continue to use as many "tools in the tool box" as possible. Expectations for field use go up each year and finding balance between usage time and down time becomes more challenging each season. Any edge we can find to become more efficient with time, resources, and staff is needed for use to continue to be successful in our business.

We have been very fortunate in the Midwest to have an ample supply of fresh irrigation water through lakes, river, and groundwater supplies. Many areas of the country have not been so fortunate, and over the next 2 decades fresh water will inevitably become a precious resource. As professionals we must prepare for the future by incorporating the technology available to us today in our best management practices. Though these programs and equipment can be a little intimidating at first, it will save you money, time, and resources in the long run if we take the time to use them. Whether it is a home yard, fairway, tee, green, or athletic field the investment in the future should be made today. ■

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