Tweaking Soil Fertility Through Paste Testing

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We all know that irrigation water plays an important part in your course's fertility program. Of course, minerals such as calcium, magnesium, sodium, carbonate, bicarbonate, chlorides and sulfur play a big part in what happens in your soil profile. However, whether your water is a "stripper" or a "precipitator" determines how soils will react to these minerals in solution. A soil test measures the potential in your soil, while a paste test will tell you what is happening right now in your soil solution and the interaction that your plants have with that soil solution.

Now would be an excellent time to tweak your fertility program by doing some paste tests. Paste tests provide you with an excellent tool in supplementing your soil testing fertility program. The paste test acts in much the same way as a tissue test, in that it is a snapshot of your fertility program at that point in time.

Here is how it works: Soil is taken from a particular spot on the course. It can be a green, tee or fairway. I like to use a cup cutter for taking samples, as we need about a gallon of soil. Two cup cutter samples are usually enough for one paste test. I put them in a gallon freezer bag and mark the sample. For every freezer bag soil sample, one bottle of your own irrigation water is needed. Using your own irrigation water is the key to your paste test. If your water is interfering with your fertility program, using a lab sample of distilled water will not give you the results you need to make good and accurate decisions. The samples are sent to the lab where the soil and the water are mixed until they have a pancake batter consistency. The sample is allowed to sit for twenty-four hours. After the twenty-four hours are up, the water is drawn off the sample and analyzed. What is found in the water solution that was drawn off the soil is what is available to your plants in the soil solution.

So what do we see? The paste test measures the amount of bicarbonates in the solution, along with soluble salts, chlorides and nitrate nitrogen. The paste test also provides information on sulfur, phosphorus, calcium, magnesium, potassium and sodium levels, along with the trace minerals. All these represent what is in the soil solution and available to the plant. The amount of nutrients and the ratios they are in gives us an excellent idea of what is available to the plant and what that plant is taking up. What this information does is give you the opportunity to adjust your fertility program to better insure the health and vigor of your turf. If we are not seeing the response from the fertility program that we anticipated, by using a paste test we can tweak that fertility program and make better changes to further improve your turf.

The paste test provides for you, the turf grower, another opportunity to receive better information to make better decisions.

(Editor's Note: Craig is an independent Brookside Soils Consultant/Agronomist.)