

The Best Turf Tips of 1994

One of the most popular annual features of the Education Conference is the Best Turf Tips. This year, 15 of the Green Section's agronomists reported on some of the helpful ideas and ingenious innovations they came across while visiting golf course superintendents in every part of the country during 1993. The Turf Tips appear throughout this issue.

Mr. Wizard Visits the Golf Course

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MR. WIZARD was famous for using practical and highly visual demonstrations to allow us all to better appreciate the subtleties of nature. The following three turf tips would make Mr. Wizard proud. They will help the golf course superintendent better diagnose problems and give him or her visual tools to help explain the ramifications of these problems to the golfers.

Tip #1 — A Simple Bioassay

Put yourself in one of these situations. Severe damage has occurred to your course. You suspect chemical damage from either vandalism, product contamination, or perhaps runoff from a neighboring area. Or perhaps you applied a preemergence herbicide a few months back but now need to overseed and are wondering if the herbicide will let the new seed germinate.

In either case, you need to quickly determine if the chemical is still affecting the turf. Dr. Wayne Bugg of the Monsanto Company uses a simple, field bioassay to make this determination.

A soil profile tool is used to remove a sample from the affected area. The slice of soil is carefully placed flat into a dish or pan. A knife is used to cut a small groove in the profile extending from the top of the sample (where the turf is) to the bottom (the deepest part of the profile). Ryegrass or bentgrass seed is carefully placed into this slice, much as if you were planting radish seeds in a garden. The profile sample is watered well and the pan is then covered with plastic food wrap to prevent it from drying too quickly. Within three to four days, the seed will begin to germinate — if it can. If it cannot, you



A soil profile can provide a visual indication of where in the root zone the chemical is affecting the turf.

should be able to determine the depth at which the chemical is causing problems. If you are considering trying to deactivate the chemical with activated charcoal, knowing the depth of the chemical's influence will help you predict how deeply the charcoal will need to be incorporated into the profile. Carrot or clover seed can be used to help identify broadleaf chemical influence while ryegrass and bentgrass seeds are best for grass-control herbicides.

Tip #2 — A Water Quality Test Everyone Can See

Golf courses in many parts of the world are finding it necessary to use less-than-ideal quality water. Although most superintendents are aware of the necessity to analyze the quality of the water from a chemical standpoint, an often overlooked parameter of water quality is its cleanliness. Water high in suspended particles such as silt, clay, and

organic matter can cause a great deal of damage. This is particularly true in the case of greens where great effort has been taken to construct an extremely uniform, layer-free root zone. Given the amount of water used on greens, it is easy to understand how “dirty” water can quickly cause problems.

It is easy to understand — but not easy to see. The accumulation of a layer of minute particles takes time and is extremely subtle. This turf tip compresses time to give a visual estimate of the result of a year’s worth of irrigation.

Water should be collected from the sprinklers or the intake area of the pump station. Estimate how much water is applied to the greens over one year through the irrigation system. For this example, we will use 30 inches. Buy the largest rain gauge you can find and fill it with the sample you collected. Let’s assume the gauge holds 5 inches. Allow the sample to sit for a few days and observe the particles that settle to the bottom. Once the sample is clear, measure the depth of the sediment. Multiply this depth by 6 in this case (to equate to 30 inches), and you have an idea of what would be applied to the surface of the greens over the year.

Obviously, this is a very rough test and should not be used in place of professional laboratory testing. Also, the quality of your water may vary from month to month or even day to day if you are in an area that receives a lot of runoff. However, this simple test can help illustrate the magnitude of sediment that could be applied to greens and should help convince others of the need for clean water.

Tip #3

A final way to achieve a closer look at what nature may have planned for you is to construct your own microclimate and manipulate the environment to your liking. Most of us have seen the complex growth chambers turfgrass scientists use to simulate a particular set of environmental conditions. Turf samples are often placed in such chambers to incubate diseases, evaluate the extent of winter injury, etc. Although much more crude, a tremendously less expensive “botany bottle” or “biosphere” can be constructed out of plastic 2-liter soft drink bottles and can prove amazingly helpful to the golf course superintendent.

For example, it is often difficult to identify the disease organism responsible for damage to turf. Somehow, the pictures in the disease identification manuals seldom look much like what you actually see on the turf. However, by placing a turf sample in a botany bottle, a microclimate can be created



Soft drink bottles and cup cutter plugs are all that is necessary to construct a simple biosphere.

that will force acceleration of the disease, making fruiting bodies, mycelium, and the damage symptoms themselves much easier to identify. This can also give the superintendent insight into what organisms are present in the sample, just waiting for the right combination of heat and humidity to occur.

A superintendent might also use a botany bottle to determine if turf is still viable after extreme low temperatures. It is extremely difficult to assess the viability of dormant bermudagrass — particularly when overseeded with ryegrass or other winter covers. However, a plug removed from an over-

seeded green can be placed in a botany bottle and subjected to “instant summer,” which in turn will result in the breaking of bermudagrass dormancy — assuming it is still viable.

Botany bottles should also give the superintendent an easy method of evaluating seed germination percentages and help in the identification of grasses — much easier when turf is allowed to grow to greater heights.

These three quick and easy-to-accomplish tests will help every superintendent peek just a little closer into the day-to-day changes taking place on the course and perhaps head problems off before they occur.