
JB COMMENTS:

There are three fundamental dimensions to successful turfgrass culture. They include the following:

1. Select properly adapted turfgrass species and cultivar(s) for the particular use, environmental and soil conditions.
2. Implement the proper mowing height and frequency.
3. Maintain the turfgrass nutritional levels in relation to the turf quality desired and the intensity of use and resultant turf injury.

A key diagnostic indicator in implementing the nutritional strategy is chemical soil testing. I am continually amazed at how many major, high visibility, intensely used turfgrass facilities fail to follow the fully proven practice of sustaining a continuing chemical soil testing program. In the last year alone I have been called into major golf course, sports field, and horse race track facilities with turf problems where either (a) the proper chemical soil testing has not been practiced or (b) periodic chemical soil tests are obtained, but proper follow-up assessment and interpretation have not been accomplished.

As a result of the failure to sustain a proper chemical soil testing program, I continually encounter the following problems:

- Continuous potassium (K) deficiencies and resultant lack of rooting and tolerance to environmental stresses including heat, cold, drought, and traffic.
- Progressive development of a phosphorus (P) deficiency over time, especially on high-sand root zones where a complete analysis fertilizer is not being used.
- Development of turfgrass toxicities from zinc (Zn), and to the lesser extent copper (Cu), and sometimes manganese (Mn) or boron (B).

It can not be emphasized enough that many serious problems develop on turfgrass facilities because of a failure to obtain chemical soil tests. A chemical soil test is very inexpensive and an important insurance policy to ensure proper decision making in selection of the specific nutrients to be applied and associated application rates required. A number of turfgrass companies that market fertilizers will provide free chemical soil tests as a service program in marketing their products. Why then is it not used? In some cases it is not done even at the time of turfgrass establishment which is a most critical phase.

Long-term, comprehensive chemical soil testing is further justified in addressing the contemporary issue of protecting the quality of our surface and ground waters. Turfgrass facilities and their managers are prone to criticisms by environmentalists of using fertilizers in an unjustified way. Documentation of actual soil nutrient levels through chemical soil tests on an annual basis is important as a long term record to show that sound science-based diagnostic procedures have been used in the decision-making process concerning when, what, and how much fertilizer to apply.

The chemical soil tests should be made on an annual basis, with the samples scheduled to be collected at the same time each year. Chemical soil tests should be made in two to four locations in the case of sports fields of 1 to 2 acres (0.4 to 0.8 hectare) and on each individual green, tee, and fairway area in the case of golf courses. On fairways or larger turf facilities, soil tests should be taken on each individual area that varies in soil texture, irrigation regime, or use intensity.

In relation to soil chemical testing, it is important to select a reputable lab. I have encountered problems where the turf facility management has (a) conducted regular soil testing but at a unsatisfactory lab or (b) selects a lab that uses only a tissue testing approach rather than a combination with chemical soil testing as the basic reference.