Analyze your turf & save money

Latest techniques such as spectrophotometer analysis reveal early deficiencies practically and economically

by Academy Laboratories Staff

Modern techniques, using flame photometer, spectrophotometer and polariscope, make complete analysis of turf practical and economical, even at frequent intervals. These modern analytic instruments now monitor turf and warn of nutrient deficiencies *before* damage becomes visible. However, not all methods are panaceas.

For example, soil analysis does not show how much and what the plant is utilizing. It also has another flaw in that it reflects the composition of the top layer, usually not more than two feet deep. Chemical analysis of grass, on the other hand, is time consuming. Usual gravimetric methods are too cumbersome to be used frequently during growing periods.

The new concept of nutrient element balance requires a complete analysis of the condition of the plant for accurate interpretation of fertilizer needs. Determination of nitrogen, phosphorus potassium, manganese, iron, copper, magnesium and boron are needed. Deficiency of any one of these elements may become a limiting factor in growth.

But at times, before turf can benefit from nutrients added to certain soils, the nutrients wash down out of reach of feeding roots. To complicate the problem, some nutrients wash down faster than others. Still another factor is that although analysis of the soil may show adequate amounts of certain minerals, they may be chemically bound in the soil and unusable by turf.

The pertinent question is, what are trees or turf actually receiving from the soil? Answers can be found by analysis of grass cutting. Turf analysis will disclose deficiencies long before nutrient lack causes droop or other pathologic manifestation.

TURF RESEARCH

In the following test case, analysis by *spectographic* means was used on a grass crop area of 30 acres in south Florida.

The area was a sandy soil one, with a pH of 4.5 to 4.8 and a lime application of two tons per acre added. This did not appreciably increase the yield of grass. Sixteen types of grass were planted. Samples of the grass as clippings were taken at 60 to 90 day intervals.

To perform analysis by spectrographic means, one must take the clippings from a three foot square area. They are cut and collected in a plastic bag. The samples are marked and sent to the laboratory.

Spectrographic analysis of the clippings of all 16 crops revealed low iron, boron, and manganese, and a deficiency of molybdenum. The deficiency was established by comparison of these plants with grass crops of a much higher yield. Spectrographic analysis further revealed correct concentrations of potash magnesium. One of the crops, Phaloris tuberosa, made an exceptional recovery when the trace elements were added with an application of superphosphate with zinc and copper sulfate.

Extreme care had to be employed in adding sodium molybdate to the soil. The maximum amount could not exceed 2 1/2 oz. per acre. Further research revealed that a small dressing of molybdenum had an outstanding effect on the establishment of leguminous cover crops in tropical plantations. Over concentration of sodium molybdenum proved poisonous to livestock in all but the smallest amounts.

SUMMARY

Spectrographic analysis revealed the lime had caused a fixing of the phosphorus, iron, boron, and manganese. Actually, the elements were in the soil but not available to the plant. Further analysis revealed a deficiency of molybdenum, copper and zinc in certain grasses. Nitrogen which was analyzed by chemical means was also a factor in the research program.

As a result of this spectrographic analysis program, an area of 30 acres showed increase of productivity of 100% by its second crop. □

Editor's note: Academy Laboratories, 6321 NW 2nd Ave., Miami, Fla., not only does turf analysis, but work on any engineering system having to do with watering a golf course.