



Best Management Practices for New York State Golf Courses

Soil Testing

Soil testing provides the basis for sound nutrient management and water quality protection programs in golf turf management. Soil chemical analysis provides information on the levels of macronutrients (phosphorus, potassium, calcium, and magnesium) and typical micronutrients (iron, zinc, copper, and boron) present in the soil, as well as the soil pH. Soil test results do not provide nitrogen levels because nitrogen constantly fluctuates between plant available and unavailable forms.

Timing of Soil Tests

Sampling should be done when soils are active. Fall sampling is most common and allows time to review results and apply lime and nutrients in advance of spring growth. Soil sampling should not be performed two months after fertilization or liming. Consistency in the timing of soils sampling allows comparison of test results from year to year.

Collecting Soil Samples

The quality of the soil test data received depends on the quality of the samples collected. A stainless steel soil probe (standard diameter of 0.6") is an ideal tool for sampling. Samples should be collected in a random pattern across the sampling area. The grass mat from the top of the sample should be removed in order to sample the soil root zone, which is typically 4 to 6 inches deep. A minimum of ten sample locations should typically be sampled per acre (or area?). The samples should be mixed together in a plastic bucket and placed in the testing box or bag provided by the soil testing lab.

Soil Test Results

Labs report results as either parts per million (ppm), pounds per acre (lbs/A), or as a predictive index. Most laboratories report a rating indicating the relative status for each nutrient, such as: Very Low, Low, Medium, High, or Very High. Test results provide recommend nutrient (including nitrogen) and lime application levels and frequency of application. Soil test results form the basis for nutrient management planning for selection of nutrient sources, rates of application, and appropriate timing to meet site specific needs for greens, tees, fairways, and roughs.

Soil pH levels may be the most important data in the test results, as nutrients may be present in the soil but not available to plants (see BMP fact sheet on pH). Slightly acidic soils are optimal for nutrient availability (typically 6.2 to 6.8 for golf turf management). Extremes in soil pH result in nutrient deficiency or toxicity, both of which can cause suboptimal growth conditions and ultimately lead to turf loss.

In addition to standard pH and nutrient information, additional soil test data, such as cation exchange capacity, soil organic matter content, and total soluble salts, can be requested and may prove valuable in the management of putting green soils in particular.