NYS P2I | New York State **Pollution Prevention Institute**

Pearl Lakes Implements Minimum Levels of Sustainable Nutrition Guidelines

Challenge
Pearl Lakes wanted to establish a cost effective, data-driven fertilizer plan.

Solution
Collect soil samples and use MLSN guidelines to evaluate fertilizer needs relative to traditional interpretation methods.

Results
The MLSN interpretation method recommends substantially less fertilizer compared to the older Sufficiency Level of Available Nutrients (SLAN) method, recommending 62 fewer pounds of phosphorous fertilizer and 196 fewer pounds of potassium fertilizer.

Pearl Lakes Golf Course

Soil testing can be very confusing. There are many numbers to look at on a soil test and multiple ways to interpret said numbers. Depending on the interpretation method, the resulting fertilizer recommendation may be large or relatively small. Recently, it was shown by Michigan State researchers that a newer interpretation method, called Minimum Levels of Sustainable Nutrition (MLSN), can be used to achieve the same turfgrass quality on putting greens relative to traditional interpretation methods, while applying 4-times less fertilizer.

The purpose of this case study is to apply MLSN guidelines and traditional interpretation methods to soil samples from an actual golf course to compare the fertilizer recommendation amounts.

Soil Testing Procedure:

Soil testing was conducted at Pearl Lakes Golf Course in Skaneateles, NY. Sampling procedure followed traditional recommendations, taking 10 to 12 sub-samples per green at 4-inch depths. Sub-samples were combined and mixed thoroughly, then dumped into labeled bags. Samples were then sent to Brookside Laboratories for analysis using Mehlich-3 extractant methods. Sampling was done on all green surfaces including the practice green.

Results

Table 1 shows that the MLSN interpretation method recommends substantially less fertilizer compared to the older Sufficiency Level of Available Nutrients (SLAN) method, recommending 62 fewer pounds of phosphorus fertilizer and 196 fewer pounds of potassium fertilizer.

Table 1 – Fertilizer Recommendations based on MLSN and SLAN interpretations

MLSN P Recommendation	SLAN P Recommendation	MLSN K Recommendation	SLAN K Recommendation
Lbs. P2O5/1000 ft^2		*Lbs. K2O/1000 ft^2*	
0.97	**2.39**	**0**	**4.49**
Total lbs. P2O5 (across all greens)		*Total lbs. K2O (across all greens)*	
42	**104**	**0**	**196**

MLSN recommendations were made to Pearl Lakes GC for 2021, where nutrient deficiencies were not observed for the remainder of the year. The MLSN guidelines should be used when interpreting soil test result as they ensure the turfgrass has access to a sufficient nutrient supply while avoiding excess application of nutrients that can adversely affect water quality on or near the golf course. Detailed soil test results and calculations of MLSN and SLAN nutrient recommendations can be found in a separate report.

Partners

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