



Turf Tips

Understanding the MSU Soil Test Report

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ORNAMENTALS TEAM

Knowing the conditions of your soil is one of the most important factors in growing healthy lawn turf. The MSU Extension office in your county will provide you with a soil test kit and can instruct you on how to take the sample. The soil test report will describe current conditions and recommend an appropriate fertility program based on those conditions. The report includes an accurate description of soil pH, phosphorus, potassium, calcium and magnesium levels, soil texture and the soil's nutrient-holding capacity.

Fertilizing your lawn on the basis of soil test recommendations can help protect water quality by minimizing overapplication. This is particularly important on sensitive sites such as waterfront properties.

Each section of the MSU soil test report is listed below along with explanations of those sections most important for turf growth. Several sections within the report are intended for traditional agricultural growing systems and do not apply to lawn settings. A sample report is provided as an example. Further assistance concerning the soil test report can be obtained from your county MSU Extension office.

SOIL TEST INFORMATION

Sample No. — Identifies the site of the sample, such as front lawn, etc.

Acres — Does not apply to lawn turf.

Soil Group — Identifies the texture of the soil:

- 0 - organic (peat or muck) soils
- 1 - clay soils
- 2 - loam, clay loam, sandy clay loam soils
- 3 - sandy loam soils
- 4 - loamy sand soils
- 5 - sandy soils

Plow Depth — Listed as 3 inches, which is the typical soil sampling depth for lawns.

Previous Crop — Identified as "Lawn" for established sites or "New Turf" if lawn is being established.

Manure — Not applicable for lawns.

SOIL TEST RESULTS

Soil pH — The level of active soil acidity or alkalinity. Above 7.0 is alkaline; below 7.0 is acid. Turf grows well in pH ranging from 5.8 to 8.2. Michigan soils for turf growth are generally within this range.

Lime Index — An indicator of reserve or potential acidity in the soil. It is used to determine the quantity of lime needed to correct the pH of an acid soil. It is measured only on samples testing below pH 6.8. The homeowner does not directly use the lime index information.

Phosphorus (P) — Reported in pounds per acre (lb/A). P levels below 20 lb/A are very low; no phosphorus is recommended for lawns if the test is above 40 lb/A.

Potassium (K) — Reported in lb/A. K levels below 120 lb/A are very low; no potassium is recommended for lawns if the test is above 250 lb/A.

Calcium (Ca) — Reported in lb/A. Calcium is generally adequate in Michigan soils, particularly on high pH, high clay soils.

Magnesium (Mg) — Reported in lb/A. The nutrient balance between K, Ca and Mg is described by the "Percent Bases" column. Mg levels are generally adequate for lawns, but application is recommended if:

- Soil test values are less than 75 lb/A in mineral soils or 150 lb/A in organic soils.
- Magnesium percent base is less than 3 percent.
- Magnesium percentage is less than the potassium percentage.

Iron (Fe), Zinc (Zn), Copper (Cu), Manganese (Mn) — Analyses are made only if requested; not normally useful tests for lawns.

Organic Matter (O.M.) — Not normally determined. Michigan topsoils are typically 1 to 4 percent; subsoils are 0 to 1 percent.

Cation Exchange Capacity (C.E.C) — An indicator of the nutrient-holding capability of the soil. The more clay or organic matter in a soil, the greater the cation

exchange capacity. Typical examples are less than 4 for sands, 4 to 8 for loamy sands, 8 to 12 for sandy loams, and greater than 12 for loams, clay loams and clays. Soils with small cation exchange capacities require fertilization more frequently and a lower rate per application.

Fertility Index — Gives the relative status of each nutrient. If the fertility index is very high (asterisks go completely across the scale), then a sufficient amount of the nutrient is available for turf.

FERTILIZER RECOMMENDATIONS

Major Nutrients — The recommendations shown on the lower portion of the report form are based on soil test results and turf information provided.

Recommendations for nitrogen, phosphate (P₂O₅) and potash (K₂O) are indicated. In general, soil test recommendations for lawn turf will be appropriate for 2 to 3 years. For new lawns and high — maintenance turfs such as an athletic field, annual soil testing is suggested.

Secondary Nutrients — Magnesium (Mg) is the only secondary nutrient for which a recommendation may

be made on turf, though it is unlikely on Michigan lawns. If pH is low and lime is needed, use dolomitic limestone at the rate recommended. If pH is acceptable or high, use a magnesium-containing fertilizer.

Micronutrients — Recommendations for micronutrients are not expected on Michigan lawns.

Lime — When the soil's pH should be raised, a recommendation will appear in the Fertilizer Recommendations box. This recommendation will be stated in pounds of limestone per 1,000 square feet for turf. If the soil is highly acidic (pH below 5.5), another soil test should be taken the following year to determine if additional lime will be needed. Liming recommendations are based on the top 3 inches of soil for established turfs.

FOOTNOTES

Footnotes are given for special information helpful in making fertilizer applications. For example, it is generally recommended that no more than 1 pound of nitrogen should be applied per 1,000 square feet in one application.

SAMPLE SOIL TEST REPORT Soil Test Information

Sample No: A
Soil Group: 3 Sandy Loam
Previous Crop: Lawn

Plow Depth: 3 inches
Field:
Acres:

Manure: No
Type:

Soil Test Results

Soil pH 5.4	Lime Index: 65	Percent Bases	Fertility Index for Crop 1 ----Low-----Medium-----High----
Phosphorus	124 lb/A	10 %	xx
Potassium	240 lb/A	81 %	xx
Calcium	964 lb/A	9 %	xx
Magnesium	65 lb/A		xxxxxxxxxxxx
Cation Exchange Capacity 9.0 me/100g			

Fertilizer Recommendations

Crop: Lawn	Nitrogen	Phosphate	Potash
	----- lb/1000 sq. ft. per year -----		
Kentucky Bluegrass	2.5-5	0.0	0.5
Fine Fescue	1.5-3	0.0	0.5
Perennial Ryegrass	3-5	0.0	0.5
Minimum Maintenance Turf	1-2	0.0	0.5

Lime recommendation is 60 lbs/1000 sq. ft.

SPECIAL NOTES FOR CROP 1 (LAWN)

This lime recommendation is for the top 3 inches of soil. Maximum suggested single nitrogen application is 1.0 lb N/1000 sq. ft. Nitrogen rates can be decreased 20-40 percent if clippings are returned. For shaded grass, decrease N by 1/2 and apply primarily in the fall. Magnesium tests low. Use dolomitic limestone — no more than 50 lb/ 1000 sq. ft. annually.



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