



Understanding Your Soil Test Results

What is a soil test?

The University of New Hampshire’s Analytical Services Lab, our state’s soil testing lab, takes your soil sample, dries it, and runs a small portion of the sample through a series of sophisticated test equipment. The results provide a chemical inventory of the soil—clues as to the quantity of nutrients or elements in the soil and their availability for plant growth. The lab sends the results to UNH Cooperative Extension, where we interpret the numbers and provide you with specific lime and fertilizer recommendations for the plants or crops you intend to grow, based on our experience with New Hampshire soils and climate.

What information is on the report form?

The soil test results are sent to you by email or via the U.S. Postal Service on a computer-generated report form. Each form contains a common format.

- **Lab number:** Each sample is given a unique number. Please refer to this number if you have any questions.
- **Sample ID:** This is the name you gave to this soil sample. For example, *Front Lawn*.
- **Dates:** The lab records the date they received the sample and the date they mailed the report to you.
- **Contact Information:** The lab’s address, phone number, Web site, and email information are provided. The UNH Cooperative Extension contact name and phone number are also listed. Please call this person if you have questions about your sample or the recommendations.
- **Customer Name:** Your name, address, and email are listed.
- **Recommendations:** Recommendations for lime and fertilizers, based upon the crop(s) you intend to grow
- **Test Data:** The soil is tested for pH, texture, and selected nutrients/elements. Charts 1 and 2 offer additional information.

Chart 1. Glossary of Terms on the Report Form

pH	Indicates whether the soil is acid or alkaline/basic. 7.0 is a neutral level; less than 7.0 is acidic and greater than 7.0 is alkaline. Although NH soils are naturally very acidic (pH 4.5 – 5.5), most plants prefer a pH 6.0 – 6.5 range. Exceptions are acid-loving plants such as blueberries, azaleas, rhododendrons, mountain laurel, and holly, which prefer pH 4.5 – 5.5. Lime is the product used to raise soil pH levels.
Texture	Refers to the class of soil. Sandy soils (sand, loamy sand) have lower water and nutrient holding abilities. Clay soils (clay, silty clay) tend to be poorly drained and are subject to compaction. Loam soils (loam, sandy loam, clay loam) are best suited to plant growth.
Mehlich 3	Name of the test techniques used to remove or extract the nutrients/elements from the soil sample.
ppm	Parts per million is the most commonly used term to describe the amount of each nutrient found in the soil. If you cut a pie into one million slices, each slice would be one part per million.
Organic Matter	That portion of the soil madeup of dead and decayed plant and animal parts. Organic matter provides nutrients for plant growth while improving the physical condition or tilth of the soil. NH soils often fall into the 3-5% organic matter range. Generally, higher levels are desirable.
Ratings:	L – Low O – Optimum H – High

Chart 2. Major and Minor Elements or Nutrients Found on the Test Results Report

Element	Function in Plant	ppm – parts per million		
		Low	Optimum	High
<i>MAJOR</i>				
Magnesium	Part of chlorophyll molecule necessary for photosynthesis	0-60	60-120	120-160+
Calcium	Important in cell elongation and cell division	0-800	800-1200	1200-2000+
Potassium	Helps resist drought. Activates enzyme systems	0-170	170-280	280-430+
Phosphorus	Essential for energy transfer and fruit & seed formation	0-30	30-50	50-75+
Lead	Particularly harmful to children and pregnant women	0-100	100-200	200-1600+

Why doesn't the lab test nitrogen?

Nitrogen is a very unstable element. Its availability changes from week to week as a result of biological activity in the soil and weather conditions. To accurately measure nitrogen, samples must be frozen immediately and shipped quickly to the lab—a very expensive process. Therefore, nitrogen testing is generally done only on high-value commercial crops, not home garden/lawn samples. The home gardener will get nitrogen recommendations based on crop need rather than on a soil nitrogen test.

Why are there no recommended values given for minor elements?

Soil test fertilizer and lime recommendations are made based upon years of field research. Scientists have looked at the level of nutrients in the soil, analyzed crop growth, and determined how much of certain nutrients are needed each growing year by specific crops. Most of this research has concentrated on major plant nutrients – magnesium, calcium, potassium and phosphorus – those needed by plants in the largest amount and supplied by lime and fertilizer. While the minor elements (molybdenum, boron, copper, manganese, and zinc) can be tested, the research to interpret these results is limited. Their levels are usually present in the soil in sufficient quantity to allow for good plant growth without adding them to the soil in the form of fertilizers.

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