

THE OUTSIDER

Illinois Extension Horticulture serving Henry, Mercer, Rock Island, and Stark



TIME FOR A TEST...A SOIL TEST!

The results of a soil test can provide Outsiders valuable information about current soil health conditions and nutrient levels. Armed with the knowledge of soil composition and condition, landowners and gardeners can make informed decisions that will optimize plant growth, garden production, and soil preservation. Growing a beautiful, productive landscape starts with the soil.

Knowing the basics about the condition of the soil will help improve your soil management. Identifying which nutrients are in excess and which are deficient informs fertilizer application decisions helping to minimize waste and environmental impact while ensuring plants have what is necessary to thrive.

In addition to the presence of soil nutrients, the pH levels of soil affect nutrient availability for plants. Soil pH is a measure of a soil's acidity (low pH) or alkalinity (high pH). The availability of micro and macronutrients crucial for plant growth vary as pH values change. Generally speaking, optimum nutrient availability is found in a soil pH of 6.5 although plants grow well at pH values above 5.5. This means that although present, some nutrients are unavailable for use by plants when soil pH is at certain levels.

Iron and manganese are especially impacted by alkaline soils. Plants experiencing iron or manganese deficiency exhibit symptoms of leaves yellowing between veins in broadleaf species and undersized new needle growth for conifers. These symptoms don't guarantee a lack of iron or manganese in soil, the nutrients may be present but their availability for use by the plant may be limited due to soil pH.



WHEN TO CONDUCT A SOIL TEST:

The timing of soil testing is critical to obtain accurate and useful results. Autumn and early spring are ideal times to collect and submit a soil sample for testing. By collecting during these timeframes, soil amendments incorporated into the landscape during the previous season will have had time to be fully incorporated into the soil profile. For most accurate results, avoid collecting soil samples when the soil is excessively wet or dry, or following a treatment such as applying lime, fertilizer, compost, or manure.

HOW TO COLLECT A SAMPLE

Before collecting any soil from the landscape, choose a soil lab to use for the testing and contact the lab for any specific instructions. Specific questions to ask include:

- How much soil is necessary for testing?
- Are there any specific procedures to follow for collecting and submitting a sample?
- Does the lab test for contaminants?
- Does the lab serve home gardeners and lawns or specifically agricultural clients?

A soil sample submitted to a lab is usually a mix of many soil samples taken from an area. If the landscape is being used for multiple uses (vegetable garden, lawn, perennial bed, etc.) or experience various environmental conditions (a sloping lawn with a drainage area), submit separate samples for testing.

Using a small hand trowel or soil probe and a bucket, collect ten to fifteen small samples spread across the area of interest. Collect samples at evenly spaced intervals over the expanse of the space, a grid pattern is an easy way to follow to collect samples or walking a zig-zag pattern over the area is also effective. Collect a sample of soil from the top three to six inches (choose a depth and keep it consistent) of soil and remove plant debris.

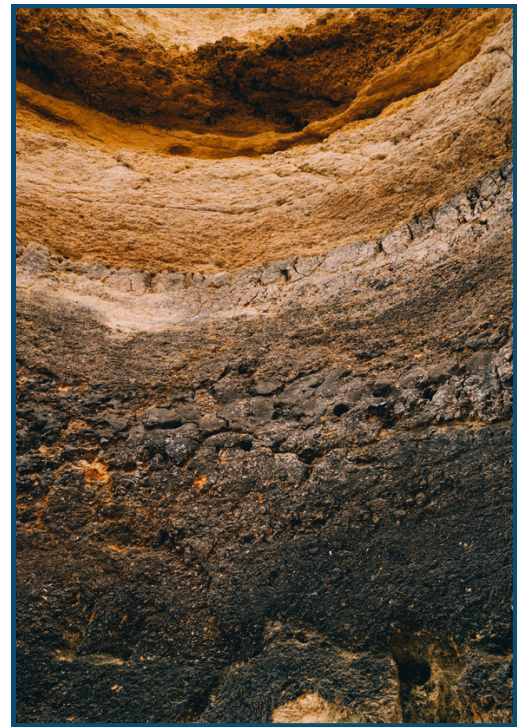
Once all soil samples from an identified area have been collected, mix together to create a composite sample. From this compiled mix, place one or two cups into a plastic bag (some labs will provide a specific bag). This sample will be used for testing. Label your sample with your name, date, and description of the area the sample was collected (lawn, vegetable garden, etc.).



READING TEST RESULTS

When soil test results are returned, interpreting the numbers begins. Basic soil test results provide an assessment of soil organic matter, pH, and macro-nutrients. Different labs may provide additional information.

- Organic matter indicates the percentage of decomposed plant residue or manure present in the soil. Organic matter helps improve water holding capacity, soil structure, and nutrient supply for plants. An organic matter content between three and five percent is recommended.
- pH measures the acidity or alkalinity of the soil on a scale of 0 to 14. A pH of 7 is neutral. Most plants thrive in a pH range of 6.0 to 7.5. If pH is outside of this range, plants may suffer, and amendments may be recommended.
- Macro-nutrients are elements critical for plant development and are supplied in large quantities. Nitrogen (N), Phosphorous (P), and Potassium (K) are the three primary macro-nutrients growers concern themselves with and collectively referred to as NPK. Secondary macro-nutrients include Calcium (Ca), Magnesium (Mg), and Sulfur (S).



OUTSIDER ACTION

Try these activities to be more of an Outsider

- Utilize this resource to find a soil lab:
<https://extension.illinois.edu/soil/soil-test-labs>
- Explore the soil texture triangle with this interactive tool from the USDA: <https://www.nrcs.usda.gov/resources/education-and-teaching-materials/soil-texture-calculator>

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Emily Swihart, Horticulture Educator
Tracy Jo Mulliken, Program Coordinator

321 West 2nd Avenue, Milan, IL 61264
(309) 756-9978
Email: ESwihart@illinois.edu