

News Article

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Gain Valuable Information with a Soil Test

Homeowners who maintain a lawn, or grow flowers or vegetables, can benefit from the information in a soil test report. Periodic soil testing informs homeowners of nutrient levels, pH, and other factors for better decision-making.

Soil testing for homeowners does not need to be done every year. But, a representative soil sample taken at least once every 3-5 years will tell you a lot. If done over time, you can see what effects your management and inputs have had on the soil.

Key information homeowners can learn from a soil test report is soil pH level (the acidity or alkalinity of the soil), phosphorus and potassium levels, cation exchange capacity, organic matter content and levels of other nutrients. The soil pH level target for many garden and landscape plants is roughly 6.0-6.8 (slightly acid), however, one should research the desired pH level for the particular plants you grow to see if amendments are needed. For example, potatoes and blueberries prefer an acid soil between 4.5 and 5.1 pH.

The soil pH scale goes from 1 (acid) to 14 (alkaline), with 7 being neutral. Changing a soil's pH can be difficult, as changing the pH from 7 to 6 is ten times more acidic than neutral, while changing it from 7 to 5 is 100 times more acidic than neutral. It is what we call a "logarithmic" scale.

In my years as an Extension Educator, I've heard many homeowners play the guessing game when it comes to their soil nutrient levels or pH. The thinking process goes something like this: "I planted something, I have some fertilizer in the garage, I'll use some, and...I'm done." Or, perhaps worse yet in regards to pH level: "I've heard lime is good for soil, I have some, I'll use some, and later...why aren't my plants thriving?"

If your soil pH is already 7.0 (neutral soil pH) or above, the danger with adding lime is that you will amend the pH higher (make it more alkaline) than it needs to be for optimum plant growth. When soil is too alkaline, some nutrients may be present in the soil, but mostly unavailable to the plant. In this case, amending pH downward with a sulfur product to the desired 6.0 to 6.8 range for most plants is typically a long and arduous process. For many in northeast Indiana, sulfur, rather than lime, is needed because many of our soils are alkaline. Sulfur, or an acidifying nitrogen product, will lower pH.

Some of our landscape plants tell us when the pH is askew. Pin oaks, for example, commonly exhibit a lighter green to yellowish color brought on by an iron deficiency. Is iron deficient in the soil? It may be, but the more likely scenario is that pH is too high. When pH is too high, the iron in the soil is more tightly held by the soil, and does not become available for root uptake. The result – your trees are deficient in iron and they look off-color. Another common deficiency is manganese deficiency in red maple.

Cation exchange capacity (CEC) is basically a measurement of the soil's ability to hold nutrients. Sandy soils have a low CEC, while soils high in clay and organic matter have a high CEC.

Organic matter is the amount of once-living plant or animal material in the soil. Adding compost to a garden adds organic matter.

The additional benefits of a soil test, either for a lawn or a garden, is that you can see what your phosphorus and potassium levels are, and adjust your fertilization program to accommodate for low levels of nutrients per your soil test report. Secondary and micronutrients can be tested for if you suspect you have a nutrient deficiency of some type.

If you live on a lake, take care to use phosphorus-free fertilizers on your lawn. On a fertilizer bag, the middle number of the 3-part fertilizer analysis denotes phosphorus (in the form of phosphate). For example, if the analysis on the bag says: 29-0-5, the bag contains 29% nitrogen, 0 phosphorus, and 5% potassium (in the form of potash). Phosphorus running off your lawn can contribute to algae blooms.

Purdue Extension has a publication to help homeowners collect representative samples for soil testing at: <https://www.extension.purdue.edu/extmedia/HO/HO-71-W.pdf>.

Finally, a list of certified soil testing labs is available at: https://ag.purdue.edu/agry/soilfertility/Pages/soil_testing.aspx. Soil testing fees, especially for basic or standard tests, are very reasonable.