

Soil Testing Made Simple

by Skip Richter

By the time you put a seed or transplant in the ground you are already 75% of the way to success or failure. You've already chosen a well-adapted or poorly adapted species or variety, a sunny or shady spot. You've either amended the soil or not, and if surface or internal drainage is poor created a raised bed...or not.

Soil pH and nutrient content is very important. While some nutrient supplementation after planting can help, there is nothing like starting off right. A soil test is the key to setting a good foundation for garden success.

With the soil test results in hand, you will know exactly what is or isn't needed. The specific nutrients required to create a balanced soil nutrient "bank account" have or have not been mixed into the soil so the new plants can thrive.

Some nutrients, such as phosphorus, need to be incorporated into the soil as they tend to not move much while others, such as nitrogen, wash down into the soil profile readily with rain or irrigation. Once plants are in place it is much more difficult to balance certain nutrient issues in a soil that is significantly out of balance.



Kits vs Labs

Store bought soil test kits are generally not as accurate or as comprehensive as a test run in a professional lab. Since soil testing is a relatively inexpensive service, I'd strongly recommend that you choose a professional lab for your soil analysis.

There are state and private labs that can do soil testing for a fee. The state soil testing lab at A&M can provide such a test. Here is the link to the correct form for home lawns, landscapes, and gardens: <https://soiltesting.tamu.edu/soiltesting/wp-content/uploads/sites/13/2023/05/urbansoil.pdf>

The Routine analysis is generally sufficient; but as an initial test it can be helpful to choose the Routine + Micronutrients.

Whichever lab you choose, I suggest you stay with that lab for subsequent testing. Labs use different procedures for extracting some nutrients which may indicate different nutrient levels that the lab can interpret based on their procedure's analysis. In other words, jumping around various labs may yield confusing results for you.

How to Take and Submit a Soil Sample

Proper sampling is important if you want accurate results. For example, after years of fertilizing a lawn with a complete fertilizer, most of the applied phosphorus is still in the top inch or two at the soil surface.



A sample from scooped from the surface could show very high phosphorus levels while a sample taken from the bottom of a 6" deep hole may show very low levels. This is one reason why it is important that your sample have equal amounts of soil from each inch of depth from the surface downward. In a garden that has been rototilled, this is not a concern since the soil has already been mixed thoroughly.

A sample from an undisturbed soil should be a vertical core of soil about 6" deep. You can do this with a soil probe designed for sampling (available at various online vendors), or by using a shovel to scoop out a 6" deep hole and then taking a vertical slice out of the side of the hole. Then use a knife to cut a 2" section from the center of the slice of soil on the shovel and place that 2" section into a clean bucket.

A hand trowel can also be used to take a vertical slice out of the side of the hole.

Repeat this several times in a random pattern in various locations in a yard or garden bed to make sure the sample represents a blend of the soil in the location you are sampling.

When you are done, mix the soil well in the bucket and remove about a pint for your sample to send into the lab for analysis.

If the soil in an area is uniform and if the plants in that area show no discernable differences in growth and overall health, then one sample is enough. If the soil varies in appearance or if plant performance in one area compared to another, I'd recommend that you sample those areas separately.

Your [County AgriLife Extension](#) office may have sample bags on hand for the Soil Testing Lab at A&M, but it is fine to just use a zip or twist tie bag that can hold a pint of soil. Choose the ["Urban and Homeowner" soil sample form](#) if your sample is for a lawn, garden, flower bed, fruit trees, roses/shrubs, or any other such horticultural plants.

Box the sample along with a completed soil sample form and the specified payment. Then mail it to the address on the form. When you receive the results and recommendations for nutrient additions, feel free to contact your County Extension office if you need additional help in how to choose a fertilizer to provide the recommended amendments based on your sample results.

