Rutherford County
FROM THE GROUND UP
March 12, 2024

Soil Testing: What's Actually in My Dirt

Justin Stefanski,
Extension Agent II

Early on in my career with Extension, I was taught a very valuable lesson: soil is what plants are grown in and dirt is what you drag in the house from the bottom of your shoes. The novice gardener will use these terms interchangeably, but true experts will use the proper vernacular when referring to their growing media. However, even the most seasoned gardeners often overlook one of the most essential garden tasks that needs to be done every few seasons, and that my friends is soil testing. Now this is not an examination of the intelligence of your soil. Rest assured that there are no math or grammar evaluations in store for your poor dirt, but rather an analysis of what nutritional value your soil will provide to the plants that happen to call it home.

(Soil sample test box and submission form with an example of a pulled core subsample-photo J. Stefanski)

Fortunately for the 7,126,489 people that reside in our fine state, the University of Tennessee has a world-class soil lab based at Ellington Agricultural Center in Nashville. According the lab's director, Dr. Robert Florence, they process around 18,000 soil samples annually. The results from these tests provide home gardeners, commercial fruit and vegetable growers, and conventional farmers with valuable information on how to optimize the productivity of their soil. Soil samples can be submitted at any of the 95 county Extension offices across the state or taken directly to the lab in Nashville. Soil sample test boxes and submission sheets can also be picked up from your local county Extension office. In Rutherford County, a conventional soil sample costs $20 and a raised bed media test is $40. If you choose to take your soil directly to the lab in Nashville, the prices are $15 for conventional tests and $35 for a raised bed media test.

Typically, it is best to sample soil in the fall, so that you can add soil amendments before the next year's growing season, but spring sampling can also be done. Many of these amendments take several months to adjust soil, so doing so in the fall or spring is ideal. Soil does not require testing each season, and it is recommended to test every 3-5 years. Collecting a good sample is by no means a difficult task, but certain rules should be followed to ensure a quality submission is sent to the lab. If you are testing your yard for growing turf, trees, shrubs, and flowers, evaluate your soil type to determine if it is consistent across the entire yard. If you have drastically differing soil types from one section

Continue to next page

of your yard to another, then you will need to collect samples from both spots, as the results will differ based on the soil types. For a garden spot or landscape beds around your home, typically you will only need one submission because the soil will be consistent throughout.

Ideally, you need to collect 10-15 different subsamples across the spot you wish to have tested and then combine them together to make one representative sample. For example, for a typical suburban yard, collect five samples in the front yard, one or two from the side yard, and another five from the backyard, following a zig zag pattern across the property. Each of these subsamples should be collected by using a spade and digging down to a depth of six inches. When you pull the soil up, remove the turf layer at the top and the outer edges and collect only the inner band of soil that remains. Remove any surface debris, such as turf, sticks, or rocks to ensure that you are left with only soil. Combine each of the subsamples together and mix them thoroughly. The same can be done for a garden area, using a zig zag pattern and collecting subsamples from the entire area. For those using raised beds, you can collect a smaller number of subsamples but ensure that you collect at least one subsample from each of the beds. The total volume needed for testing raised bed soil media is at least a half-gallon. Once you have the subsamples collected, it is vital that soil is left to dry out before it is put into in a soil sample test box. Let soil dry naturally on a paper plate or newspaper, never try to microwave or put wet soil in the oven to speed up the process, as this will ruin the sample. Once you have your dry soil ready to submit, you can come to your local county Extension office or go directly to the soil lab in Nashville.

Getting the results back from the lab usually takes around one week and the analysis report will include pH, phosphorus, potassium, calcium, and magnesium levels. Nitrogen is not included in the test results because it will vary throughout the season and early season testing will always result in low amounts, making the test unreliable. Additionally, fertilizer and lime recommendations will be provided based on your analysis. This information is crucial in helping gardeners improve their soil by adding recommended amendments and helping to maximize the productive quality of their gardens, lawns, and landscapes.

Getting your soil tested truly takes all the guess work out of the equation in getting your soil nutrition levels just right. It will provide you with the knowledge to add exactly what is needed, in what quantities, and the proper time to apply them. Many times, the difference between a lousy garden or yard and a truly great landscape or garden, really does depend on knowing the quality of your soil and what to improve it with. So, stop guessing and start side-dressing, with soil amendments that is! Get your soil tested this season and you will be amazed by the results.

Happy Gardening!

For questions or comments, please feel free to reach me at the UT/TSU Rutherford County Extension office. Our main office line is 615-898-7710 and my email is jski@utk.edu. Additionally, please check us out on the web at rutherford.tennessee.edu to learn more about upcoming classes and all other Extension programming activities that we offer.