Gardening Basics

Soil Testing

Ever wonder what's going on with your soil? There's an easy way to find out– have it tested! The purpose of a soil test is to provide you with a detailed analysis with recommendations on how you can improve fertility.

Why Soil Quality is Important

The soil is the source of all the elements plants need to grow, nutrients, organic matter, air, and water. Healthy soil is also the foundation of a water-efficient landscape, particularly here in North Texas, where our soils are often poorly draining sticky clay.

Over time the quality of your soil changes. A soil test can identify nutrient deficiencies, acidity or alkalinity, the amount of organic matter, and the texture of your soil. Caring for your soil by identifying what is lacking and adding amendments accordingly is key to growing healthy plants year after year. Of course, the soil test cannot identify issues with the amount of sunlight, pests, or drainage issues that affect your garden.

Where to Get Your Soil Tested

Texas A&M AgriLife Extension Service Soil, Water and Forage Testing Laboratory offers a soil testing service for a nominal fee. The results of the soil test are mailed or emailed to you with recommendations for which nutrients and how much should be applied.

It takes 2 – 3 weeks to get results, so having your soil tested in late winter or early spring will give you time to make adjustments before the growing season begins. The tests should be repeated every 3 to 5 years.



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Use this link to obtain the Urban Soil Submittal Form (other tests are available) and instructions for collecting samples, payment, and mailing:

https://soiltesting.tamu.edu/

Note: to receive the results via email and avoid an extra fee, you must email the Lab (see the instructions.) Both forms and bags are also available at the County's Texas A&M AgriLife office, 611 Kimberly Drive, Suite 114, Denton.

What to Test For

- pH level or how acidic your soil is; if the pH isn't in the appropriate range for a plant, it cannot take up nutrients.
- Macro-nutrients Nitrate-nitrogen (NO3-N), phosphorus(P), potassium(K), calcium (Ca), magnesium (Mg), sodium (Na) and sulfur(S).
- Micro-nutrients such as iron (Fe), manganese (Mn), and zinc (Zn) may not be needed if you regularly amend your soil with organic matter such as compost.
- Organic Matter can also be tested but may not be needed if you regularly amend your soil with organic matter such as compost.

It's not necessary to memorize all the elements to test. Just request the Routine Analysis test (#1) on the Urban Soil form. It is the test for basic fertilizer recommendations that will come with the results.

How to Collect a Good Sample

Collecting good soil samples is critical to getting accurate results from your soil analysis.

- Use a clean trowel or shovel to collect soil, 6 inches deep, from 10 random areas in your garden**. See this page for detailed instructions in order to get an accurate urban soil sample**: https://soiltesting.tamu.edu/soiltesting/wp-content/uploads/sites/13/2023/05/urbansoil.jpg
- Place the 10 samples in a clean plastic container and thoroughly mix them.
- Place about 2 cups of the mixed soil in a plastic zipper-lock sandwich bag and double-bag the sample. Soil sample bags and forms are also available at the Denton County office of Texas A&M AgriLife.
- Follow the same steps for any additional areas, e.g., lawn, vegetable garden. Don't mix the samples from the different areas and be sure to label each sample bag with a permanent marker (e.g. vegetable garden), following the form's instructions.
- Complete **a form for each sample**, and within a day of taking the sample, send the form, sample, and payment (1 set and payment for each area to be tested) to the address listed on the form.

Understanding Your Soil Report

You will learn so much from the detailed results report. The Texas A&M AgriLife office can help with interpretation:

- Column 1: The most requested analyses
- Column 2: Results of the requested analyses
- Column 3: The critical limit for each nutrient and pH
- Column 4: The units of each of the parameters measured
- Columns 5 – 10: A graph of the soil sample analyses in comparison to the critical limit. If the results are greater than the critical limit, no additional nutrient will be recommended
- Column 11: The recommended nutrients per 1,000 square feet
- The bottom quarter of the report: Any notes on management practices for the entire growing season

Additional Soil Information

Dr. Joseph Masabni is a Texas A&M AgriLife Extension Horticulturalist specializing in vegetables who has authored many helpful publications. He and his colleague, Patrick Lillard, wrote this article on soil and row preparation: https://aggie-horticulture.tamu.edu/wp-content/uploads/sites/10/2013/09/EHT-076.pdf

One of our Gardening Basics documents, "Identifying Soil Drainage Issues", helps with problem areas: https://www.dcmga.com/garden-basics-identifying-soil-drainage-issues/

The index to The Root e-magazine is worth exploring for many articles on compost, garden preparation, etc.: https://www.dcmga.com/learn-more/the-root-digital-monthly-gardening-magazine/root-articles-index/

Check out another one of our many Gardening Basics documents, "Understanding Fertilizer Labels": https://www.dcmga.com/garden-basics-understanding-fertilizer-labels/

Resources

Masabni, Joseph, "Soil Preparation", Texas A&M AgriLife Extension, (accessed 19 Nov 2024), https://aggie-horticulture.tamu.edu/wp-content/uploads/sites/10/2013/09/EHT-076.pdf

"Texas A&M AgriLife Extension Service Soil, Water and Forage Testing Laboratory", Texas A&M AgriLife Extension, (accessed 19 Nov 2024), https://soiltesting.tamu.edu

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