

Soil Sampling & Testing

Air, water, sunlight and soil . . . plants need these four things in order to grow and to survive. Air and water supply the most critical elements - carbon, hydrogen and oxygen - and make up about 95% of the plant. The remaining 5% - the thirteen required nutrients - are supplied by the soil. Fertilization may very well be required to supplement the soil with these necessary nutrients.

The three primary nutrients are Nitrogen (N), Phosphorus (P) and Potassium (K). Should deficiencies occur, they will most likely occur in one of these three elements. The secondary nutrients (Calcium, Magnesium and Sulfur) and micronutrients (trace elements) comprise the remaining ten required.

Soil also is measured by its chemical reactive quality: pH (potential hydrogen). The ability for soil to retain and make nutrients available for plants to absorb is determined by pH, which is measured on a scale of 0 - 14, with exactly 7.0 pH being neutral, 0 - 6.9 pH being acidic, and 7.1 - 14 pH being alkaline or basic.

Why is soil testing important? Since soil testing provides information about soil fertility and pH, this information is vital to determining what fertilizers may be necessary to support the optimum health, growth and productivity we expect from our gardens.

First, why is soil testing important?

Soil testing is an important component to initiating diagnostic effort should your garden show signs of deficiency. Also, some nutrients like phosphorus and potassium tend to remain in the soil; adding more can leach into the water supply. So, why spend more money and put the environment at risk if your soil only needs nitrogen? If you don't know what you have, how can you improve upon it? Take advantage of the nutrients that are already in your soil by getting it tested this fall.

How does the sampling process work?

Proper and careful collection of a sample is extremely important to yield the best results. Your soil fertility program hinges on the accuracy of this testing. There are several types of soil tests but, for most homeowners, the Routine Sample (a \$10 test) should be sufficient. This test focuses on soil pH and the three primary nutrients, Nitrate-Nitrogen, available Phosphorus and Potassium. The analysis generally takes one to two weeks to conduct and have results back to you.

Follow these steps to obtain a sample:

1. Where to sample?

Are there areas in your landscape that had been subject to recent fertilization, building activity, erosion, burning or flooding? Are they adjacent to roads or next to fences? These would be considered "problem" areas, and including these will skew your general garden results. If analysis is required for these areas, sample these separately.

2. **Use the right tools!**

Ensure all collection tools (trowels or sampling tubes) are clean and free of fertilizer and limestone residues. The collection bucket must be plastic or non-metal to avoid contaminating the sample with micronutrients.

3. **Soil only, please.**

Remove thatch, mulch, rocks, and surface litter so as to collect only the soil.

4. **Take your samples.**

Sample to a depth of 4 inches for lawns and to a depth of 6 inches for ornamental areas. Select slices or cores of soil from 15 – 20 areas scattered around your landscape. Keep any wet samples separate and allow them to dry before proceeding.

5. **Combine and deliver..**

Combine all samples in the bucket and mix thoroughly. Deliver at least one pint of the mixture in a Ziploc bag for processing to:

Tulsa County Extension Office
4116 East 15th Street
Tulsa (Gate 6 of the Fairgrounds)

When and how often do I test my soil?

Although soil may be sampled any time of the year, fall is by far THE best time. To maximize the benefit of your new fertilization program, testing several weeks in advance of spring planting is optimal.

Once attained, maintaining soil fertility requires periodic testing:

For vegetable gardens: 1 – 2 years is recommended

For ornamentals and lawns: Test every 2 - 3 years.

Other References

[Soil Classification Calculator](#): Classification of the relative percentages of sand, silt and clay.

[Soil Testing Leaflet - L249](#)

[More on Soil Testing - Lawn and Garden Help](#)