

Don't Guess, SOIL TEST!

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Why Soil Test?

- Soil testing eliminates the guess work and reveals exactly how much fertilizer or lime is needed for specific plants to be grown in a particular soil type.
- Liebig's Law of the Minimum states, "Plant growth is limited by the scarcest resource, not the total resources available." This means that if one element is lacking, plant growth will be limited even if the other nutrients are available in abundance (Figure 1).
- Ideal soil pH for most plants is 6.0–7.0 (Figure 2).
- Low pH creates reduced macronutrient availability and increased micronutrient availability (potential toxicity may occur).
- High pH means decreased micronutrient availability.

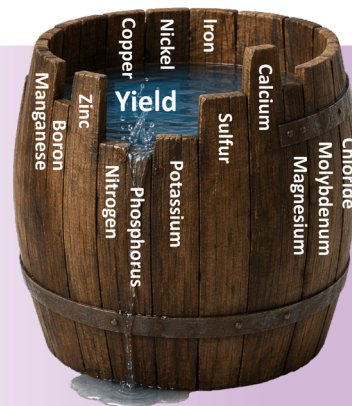


Figure 1. Graphic representation of Liebig's Law of the Minimum. Illustration provided by Leandro Vieira

Soil Sampling Guidelines

1. Divide the area of interest based on soil type, topography, fertilizer management, previous crop, etc. (Figure 3)
2. Sample 6 inches of soil using a soil probe or a garden shovel.
3. Collect 15 to 20 cores per composite sample.
4. Mix the soil thoroughly in a clean bucket (avoid contamination).
5. Place 0.3 to 0.5 pounds of soil in a paper container or a resealable plastic zipper bag.
6. Properly label the soil-filled containers with your name, area sampled and contact information.
7. Never oven dry your soil sample.

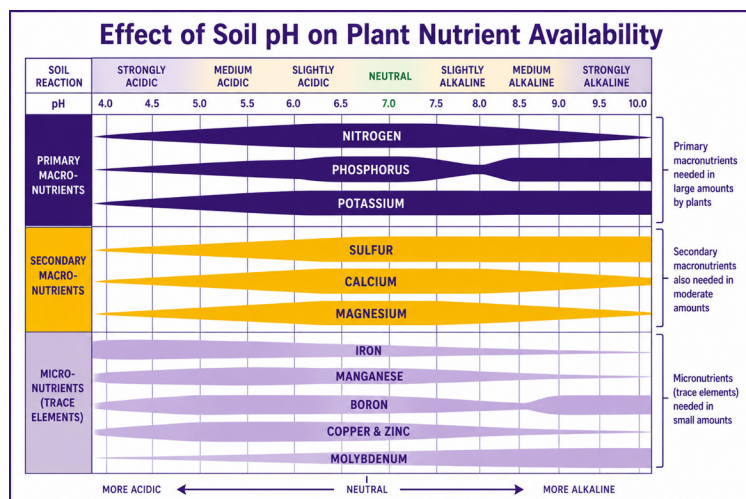


Figure 2. Plant nutrient availability as affected by soil pH. Illustration provided by Leandro Vieira

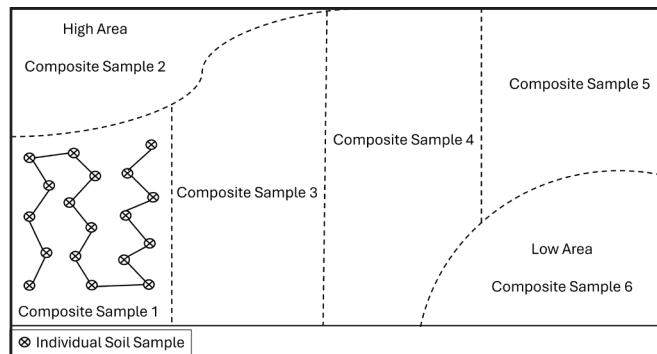


Figure 3. Graphic representation on how to collect composite soil samples. Illustration provided by Leandro Vieira

Soil Sample Submission Guidelines

- Properly label the soil-filled containers with your name, area sampled and contact information. Please fill in all of the blanks.
- Fill out the submission form (Figure 5). All information about the sample should be placed on the form to ensure proper reporting. Make sure to select the plant of interest. Options are available on the back of the form.
- Include check or money order for the requested analyses. Alternatively, credit card information may be called into the laboratory.
- Place soil-filled containers, form sheet and payment in a box and seal it. Be sure that the paperwork and payment are not inside the sample box. Securing the paperwork in a resealable plastic zipper bag will ensure no moisture damages the submission form or the payment.



Figure 4. Soil probe with a 6-inch-deep sample.
Photo by Leandro Vieira

- Pay shipping at your local post office. You may also drop your samples off at the LSU Soil Testing Lab, 128 Sturgis Hall, Baton Rouge, LA 70808.
- For more information, call the lab at 225-578-1219.

References

- Brady, N.C., & Weil, R.R. (2008). The nature and properties of soils. 14th Ed. Pearson, Upper Saddle River, New Jersey. 975 p.
- Havlin, J.L., Tisdale, S.L., Nelson, W.L., & Beaton, J.D. (2014). Soil fertility and fertilizers: An introduction to nutrient management. 8th ed. Pearson, Inc., Upper Saddle River, New Jersey (USA). 516 p.
- Vieira, L.O., Pereira-Neto, J.D., Twidwell, E.K. (2025). Fertilizer recommendations for pastures in Louisiana: N-P-K-S. Louisiana State University Agricultural Center, P3950-E. Available at: <https://www.lsuagcenter.com/articles/page1754402420203>
- Vieira, L.O., Tubaña, B., Padgett, G.B., Moseley, D., Gravois, K., Levy, R.J. (2025). Fertilizer recommendations for field crops in Louisiana: N-P-K-S. Louisiana State University Agricultural Center, P4004. Available at: <https://www.lsuagcenter.com/articles/page1753969451254>

