

May

- **Use tissue testing to optimize yield of pecan trees.**

Sufficient nutrient uptake is critical for nut development. Tissue testing after bloom and during early fruiting helps detect hidden hunger and can help in the adjustment of a fertilizer program. Visit www.ncagr.gov/agronomi/pdffiles/isplant.pdf for general tissue sampling and submission instructions.

Use of correct sampling procedure is critical. Collect only the middle pair of leaflets from a compound leaf on the terminal shoot of the current season's growth. Each sample should consist of a minimum of 30–45 leaflets. Try to choose undamaged leaflets growing in full sun. Do not collect samples after recent pesticide or nutrient spray applications.

- **Sidestep the high cost of fertilizer by using animal waste as a plant nutrient source.**

Farm-generated wastes are a widely available and inexpensive alternative to commercial fertilizers. Animal wastes provide essential plant nutrients and also improve soil physical properties, such as water infiltration, aeration and nutrient-holding capacity. Before applying waste material as fertilizer, send a sample to the NCDA&CS Plant/Waste/Solution/Media Section. This laboratory tests for levels of plant nutrients and, when necessary, can measure pH, lime value and soluble salts. Based on analytical results, the waste report provides estimated rates of nutrient availability for the first growing season. With this information, you can figure out how much waste it will take to meet the specific nutritional needs of a crop. Supplemental applications of commercial fertilizer may be necessary, depending on rate of nutrient availability, cropping system, environmental guidelines and other factors.

- **Use tissue test results to improve crop production.**

For high-value crops, in particular, plant tissue analysis is a valuable tool for optimizing monetary inputs and yield. It is a way to monitor the effectiveness of an ongoing fertilization program. It is a way to identify existing or potential nutrient problems. It can also be a way to gauge plant readiness for harvest.

The part of the plant to be sampled and the time of sampling vary by crop. Visit www.ncagr.gov/agronomi/pictorial.htm for specific sampling instructions for several major crops. Samples can be dropped off at the NCDA&CS Plant/Waste/Solution/Media lab in Raleigh, mailed through the U.S. Postal Service, or shipped via UPS or Fed Ex. Basic tissue testing costs \$5 per sample, and results are typically posted on the NCDA&CS Agronomic Division website [www.ncagr.gov/agronomi] two business days

after samples arrive at the lab. Special tests to measure chloride, molybdenum or petiole nitrates cost an extra \$2 per test per sample.

- **Spring and summer are the best times to take soil samples from established lawns and gardens.**

It is always a good idea to take soil samples several weeks before planting a garden or renovating a lawn; then if lime is needed, you have time to apply it properly and let it begin to work before planting. For established plantings, spring and summer are good times to submit samples because there is no peak-season fee. Reports are usually posted online within 10 days.

The soil lab urges clients to enter and submit soil sample information online via the PALS website instead of filling out a paper sample information form. The online option sends sample information to the lab electronically and helps prevent data entry errors and duplications. A printed copy of the electronic *Soil Sample Information* form must be submitted with the samples. Links on the Agronomic Division homepage — www.ncagr.gov/agronomi — provide detailed instructions.

Samples must be submitted in NCDA&CS soil boxes, which are available from all county Cooperative Extension offices and from the Agronomic Division office in Raleigh. Reports are posted online in PALS.

- **Collect petiole samples from vinifera vineyards during full bloom.**

To monitor the nutrient status of vinifera grapes, collect a tissue sample during full bloom. The sample should consist of at least 50 petioles collected from leaves opposite the first or second bloom cluster from the bottom of the shoot. Collect petioles randomly from throughout the entire vineyard. Do not collect more than two petioles per vine. Place the sample in a paper bag or envelope. The plant tissue report—available in a few days—will let you know if your fertilization program is meeting your crop's needs.

If you want to use tissue analysis to diagnose a suspected nutrient problem, collect a petiole sample as soon as you see symptoms. Don't delay—time is critical when correcting nutrient problems. To troubleshoot a problem, you should collect four different samples: 1) a petiole sample from symptomatic leaves, 2) a similar petiole sample from healthy plants, 3) a soil sample from the problem area and a soil sample from the healthy area. Send all samples along with a completed [Plant Sample Information](#) form and [Diagnostic Soil Sample Information](#) form to NCDA&CS Plant/Waste/Solution/Media Section. There is a \$5.00 processing fee for each grape petiole sample.