

February AgroTips

Tobacco transplant producers should doublecheck the nutrient content of their float-bed water by submitting a sample for solution analysis.

Visit www.ncagr.gov/agronomi/pdffiles/2013FloatBed.pdf for details.

Gear up for spring gardening by checking the quality of your compost.

Everyone knows that the NCDA&CS Agronomic Division analyzes soil samples, but most people are surprised when they find out that it tests compost too. Putting out compost is a good way to improve the physical properties of the soil and increase its moisture-holding capacity. However, compost also contains organic fertilizer nutrients. For this reason, you really ought to know ahead of time how much “fertilizer” you are applying.

To determine the fertilizer value of compost, collect a good, representative sample and send it in for waste analysis. Results will tell you the concentrations of nutrients that are available to your plants the first season the compost is applied as well as the compost’s pH and electrical conductivity (a measure of soluble salts). The report also provides the ratio of total carbon to nitrogen, which helps commercial compost producers decide how to best mix feed stocks to optimize decomposition rate.

Visit www.ncagr.gov/agronomi/uyrwaste.htm for instructions on how to collect and submit samples. Additional information is available in our Waste and Compost Analysis Guide.

Familiarize yourself with wheat tissue sampling guidelines.

Dr. Randy Weisz of N.C. State University has refined wheat fertilization guidelines for North Carolina conditions. Visit www.smallgrains.ncsu.edu/_Pubs/PG/Nitrogen.pdf for details. These guidelines tie recommended fertilizer rates to wheat biomass measurements and tissue test results. Growers who want to use these guidelines must submit both types of samples (biomass and tissue) to the Agronomic Division. For more information, contact your regional agronomist or other agricultural advisor.

Monitor strawberry nutrient status by tissue sampling.

The Agronomic Division recommends monitoring the nutritional status of strawberries and the efficiency of fertilizer programs by submitting a plant tissue sample at least once a month, preferably every two weeks. Sampling should begin with the first flush of growth in the spring and continue throughout the flowering and fruiting season.

Plant tissue samples should be representative of conditions in the field. A good sample includes the most recently mature trifoliolate leaves (leaf blades and petioles) from 20 to 25 locations in the field. Detach petioles from the leaves as you collect them but include them in the sample. Information on collecting and submitting strawberry tissue samples is available online at www.ncagr.gov/agronomi/pictorial.htm.

Petiole analysis is a good indicator of the nitrogen currently available for growth and development. Be sure to provide the name of the strawberry cultivar on the Plant Sample Information form.

If tissue analysis reveals plant nutrient deficiencies, consider the following factors before taking corrective action:

- soil pH and nutrient levels,
- environmental conditions such as rainfall and temperature,
- disease and insect pressure, and
- plant appearance and stage of development.

Check source water used in greenhouse and nursery operations and correct any SAR (sodium adsorption ratio) problems.

Water used in plant production, including greenhouse-grown tobacco transplants, should have an SAR value of 4 or less. For ornamental plants in a nursery setting, SAR values of 10 or greater are cause for concern. High SAR values are most common for water samples from coastal areas.

A high SAR value on a solution report indicates an imbalance among sodium (Na), calcium (Ca) and magnesium (Mg) cations. This imbalance can cause leaf burn due to foliar uptake of Na. In mineral soils, this imbalance can also lead to poor soil structure, which hinders infiltration of water. In soilless container media, however, this effect is negligible.

The best way to reduce SAR to the desired level is to add calcium from a source such as gypsum. To calculate the amount of gypsum needed to reduce SAR to 4, follow these steps.

Calculate the amount of calcium required in parts per million (ppm).

$$\text{Ca needed} = 0.004725 \text{ Na}^2 - 1.64 \text{ Mg} - \text{Ca},$$

where Na, Mg and Ca are the ppm concentrations listed on the solution report.

Calculate the appropriate rate of gypsum (22% Ca) to apply by inserting the Ca needed value from step 1 into the following equation.

$$\text{Ca needed} \times 0.0607 = \text{ounces gypsum per 100 gallons of water}$$