



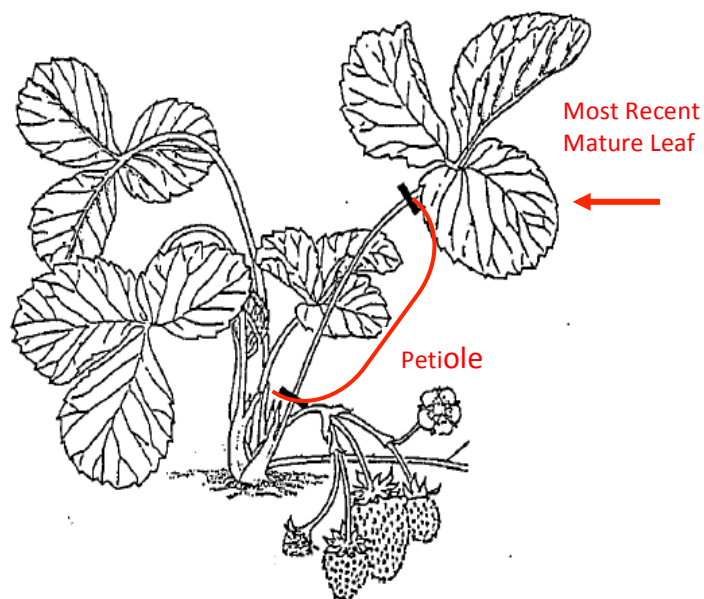
CONTACT: *Kristin Hicks, Plant/Waste/Solution/Media Section chief*
NCDACS Agronomic Services Division
919-733-2655

Optimize strawberry fertility with plant tissue testing

RALEIGH – Commercial strawberry production requires intensive and precise fertilization. The best way to decide how much fertilizer to apply is to collect leaf and petiole samples and have them tested for nutrient levels. The Agronomic Division of the N.C. Department of Agriculture and Consumer Services recommends collecting the first tissue samples when plants begin to flower and continuing to do so every two weeks throughout flowering and fruiting (approximately March 1 – May 30 in North Carolina).

The NCDACS laboratory measures actual concentrations of essential nutrients within the plant and compares them to established target concentrations for healthy strawberries. By monitoring nutrient levels and adjusting fertilization accordingly, growers can easily optimize crop growth and fruit quality. For strawberry tissue samples, both leaves and petioles are collected and submitted. Analysis of leaflets can reveal nutrient imbalances within the plant. Analysis of petioles indicates the amount of soil nitrogen currently available for crop growth and development, and serves as the basis for the nitrogen rate recommendation.

To collect a tissue sample from strawberry, select most recently mature, trifoliate leaves (MRMLs). Those leaves are full-sized and green and consist of one petiole (leaf stalk) with three leaflets. MRMLs are usually located three to five leaves back from the growing point. When MRMLs are being collected, it is very important to detach the petiole from the leaflets immediately. This action halts nutrient transfer between the two plant parts, which are analyzed separately.



Each sample should include leaves and petioles from 20 to 25 locations within a uniform area. For example, all of the plant material in a single sample should be the same variety, growing on the same soil type, planted at the same time and having the same management history. The test costs \$7 per sample for North Carolina growers and \$27 for out-of-state growers and includes both leaf and petiole tests.



Samples can be submitted as either *predictive* (routine) or *diagnostic* (troubleshooting). Typically, biweekly samples collected during the bloom and fruit stages are considered predictive. If plants are showing signs of poor growth or health, tissue samples should be submitted as diagnostic and include both samples of unhealthy and of healthy plants for comparison.

When submitting tissue samples, be sure to fill out the information sheet completely, including fertilization history and environmental conditions. It is particularly important to provide the current growth stage (Bloom or Fruit) and the number of weeks since first bloom. For example, week 1 (first bloom) would be the stage where most of the plants have two or more flowers on them. The management recommendations you receive on your report depend on the information you provide with the sample. Turnaround time is about two working days.

A pictorial guide to collecting and submitting strawberry tissue samples is available online at www.ncagr.com/agronomi/pictorial.htm. NCDA&CS regional agronomists are also available throughout the state to offer on-site guidance and answer questions about sampling and fertilization. Visit www.ncagr.com/agronomi/rahome.htm to find contact information for your regional agronomist, or call Kristin Hicks or Aaron Petit at (919) 733-2655.