

# **NUTRIENT ANALYSIS SAMPLING CHEAPER THAN CURE ATTEMPT LATER**



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Looking a bit ahead, mid-summer is generally a time of relative nutrient stability in fruit plants; this is the reason the time is chosen to utilize plant tissue analysis (PTA) sampling as a means of providing a snapshot (if you will) of prevailing nutrient levels. Tissue analysis is not meant to stand-alone; it represents but one leg of a three-legged stool, the other two supports being soil testing (ST), and grower attentiveness to plant growth performance. In fact, PTA is accurate only if ST discloses that soil pH is within an acceptable range for the specific fruit crop (5.5 - 7.0 for raspberries and strawberries; 4.0 - 5.0 for blueberries and cranberries; 5.5 for American grapes; 6.5 for vinifera types; [hybrids evaluated on a case-by-case basis]), and valuable if a grower is pursuing an integrated crop production practice -- one where knowledge informs action.

Plant tissue analysis (TA) is usually a better indicator of nutrient status than soil testing (ST). The soil test speaks of possibility. Tissue analysis says how things actually played out. The analysis report is kind of a signed withdrawal slip that specifies what, and to what extent, various mineral elements were taken from the soil bank and actually moved into your crop's account for use. And TA provides a more inclusive picture than ST, as it describes the status of fully 13 essential nutrients normally found in your fruit plant leaves, and then relates these findings to levels that should be expected for that time. Thus, if the assay and the tested values are different, analysis can alert the grower that specific nutrient levels are approaching deficiency, are deficient, or perhaps, if they might be in excess. Think of TA as providing an earnings report describes how your fertilization investment program is performing, and take to heart its suggestions for corrective action (recommendations) so you can maintain your quality-cropping portfolio.

The greatest economic value of TA is in its pre-emptive role: remedy can be applied before growth problems arise or before fertilizer is miss-applied. Testing cost then, is but a fraction of the expenses one could otherwise incur: expenses stemming from reduced crop quality aspects (nutrition, appearance, keeping and handling qualities; business reputation), costs arising from nutrient-stress-induced cold injury, and (or in turn) secondary pathogen and insect predation. Need-based prevention is virtually always cheaper than either a later cure or the attempt!

TA recommendations for strawberries are based on newly expanded leaves that are collected after renovation in late July or early August. For raspberries, select fully expanded primocane leaves in early August. For blueberries, select young leaves exposed to full sun in late July. Collect at least 50 leaves, remove stems, and wash leaves in distilled water. Air dry them, place in a paper bag, and send them to the lab for analysis. With grapes, submit petioles only. (Just the stem of the leaf blade; remove and discard the leaves). A sample size of 60 petioles is recommended.

Generally, any samples taken should be representative of the entire field. However, if there is a particular area that appears to be doing poorly, or there is a repetitive random pattern of individual plants with similar symptoms of malaise, these respective anomalies should be sampled separately. In the latter instance, it may also be wise to conduct a nematode analysis just beyond the affected areas, that is, on the periphery where healthy plants border the affected bushes. It is also good to sample separately areas that you are aware are fertilized differently, or which have dramatically different soil profiles, or slopes. A plant tissue analysis (leaf or petiole), including nitrogen, costs \$28.

Coordinating regular assessment of soil pH and nutrient levels and plant foliar nutrients is the surest way to maintain superior crop quality and optimum acclimation and survival. Test soil pH annually, submit foliar tissue samples for analysis every other year, and carry out a complete soil

test every third year. Testing results are usually returned within 2 - 3 weeks, which allows time for possible foliar sprays yet this season, or allows you to plan fertilizer orders for fall incorporation (generally the best time for nutrients other than nitrogen). Aside from testing, it is always desirable to note unusual growth patterns, leaf appearances, and unexplained reductions in yield and the environmental conditions encompassing the period of changed condition.

Foliar and petiole TA and soil test kits are available through your CCE office in your County of residence. You will soon be able to directly obtain sampling kits from Cornell's Nutrient Analysis Lab (CNAL) in Ithaca. Their website is at <<http://www.css.cornell.edu/soiltest/newindex.asp>>. Presently, phone, FAX, and email are your operational choices [Phone: 607-255-4540 Fax: 607-255-7656, [soiltest-mailbox@cornell.edu](mailto:soiltest-mailbox@cornell.edu)].

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