



## VITICULTURE GUIDELINES FOR SAMPLING PLANT TISSUE

# FACT SHEET

### SOIL ANALYSIS

The first analysis a grower should consider is that of soil analysis. This is useful before planting to establish lime and fertilizer requirements and can be used after planting to understand the cause of any nutritional problems (confirmed by foliage analysis) and to modify fertilizer applications accordingly.

Soil analysis is only one management tool for determining nutritional disorders and fertilizer requirements. It will give the grower an idea of which nutrients are likely to be deficient in the crop and also indicates if lock-up through interaction with soil pH or a high level of another nutrient is likely. For example, a high pH can lock up manganese and zinc, high levels of potassium can reduce the availability of magnesium, and high calcium levels in the soil can inhibit boron availability.

### PLANT TISSUE ANALYSIS

Tissue analysis in a vineyard can be much more effective than soil analysis; tissue analysis represents the concentrations of nutrients the grapevine is able to remove from the soil. Petiole (leaf stalk) analysis is the most popular method, sampling the petiole of a basal leaf opposite a bunch cluster.

Leaf blade analysis is also a popular method of sampling and is the method of choice with A&L because of the timing. Either method can be used depending on your preference.

### Time to Sample

Timing is extremely important. Samples must be taken during the proper stages. A good tissue program should be pro-active and used as a management tool to correct nutrient disorders before they become critical to the quality and development of the crop. The timing is dependent on the part of the plant that you will be sampling

### PLANT PART TO SAMPLE

#### Petiole Sampling

Sampling is most commonly undertaken when the majorities of vines are flowering but can also be taken at veraison. A minimum of two petioles from each plant should be taken and we will require about 40-60 petioles per sample to ensure a representative sample.

A & L CANADA  
LABORATORIES, INC.

2136 Jetstream Rd.  
London, ON N5V 3P5

Phone: 519-457-2575  
Fax: 519-457-2664  
Aginfo@alcanada.com  
www.alcanada.com

Fact Sheet No. 361  
Revised 11/2013

## **Petiole Sample Timing**

**Full Bloom**

**Veraison**

### **Leaf Blade Sampling**

Leaf blade analysis is also used and is the sample of choice because we can begin sampling earlier in the season to get an idea of nutrient status earlier. This allows us to take corrective action earlier in the season if a problem is occurring. We require about 15 to 20 leaves per sample or a good double handful of leaves to make a representative sample. With leaf blade -sampling data is available for leaf material taken 2 - 3 weeks prior to flowering. At this time it would require too much petiole material to get a sample but leaf material is a larger volume. This sampling time would be a stage 12 on "The Grape Life Cycle" chart.

A second sample as a follow up can be taken at "full blossom "stage 23 and a third at "veraison" stage 35.

## **Leaf Blade Sample**

**2 - 3 weeks prior flowering**

**Full Bloom**

**Veraison**

Enough samples need to be taken to get a representative sample, making sure not to combine different varieties or plants that are growing in different soil types. Each sample should represent not more than 4 hectares, even in uniform vineyards. Areas of different soil types and or strong vine areas should be sampled separately. In order to get enough material to run an analysis we will need 1/2 a pint of loosely packed leaf material.

### **Care of Samples**

Put each sample in a new, clean paper bag. Do not use a plastic bag because of moisture condensation and possible moulding. Label and keep a record of the pertinent information - name, date, variety, location, condition of vineyard, and foliar sprays used. Samples should be shipped by courier to the lab. If there is a delay, keep bags open in a warm, dry, well-ventilated place. This begins the drying process and prevents moulding and decay.

Foliage contamination from a nutrient spray can give erroneous laboratory results. Do not sample after a nutrient spray unless you, (1) are not considering analysis of any nutritional element contained in the spray, (2) have made arrangements with the laboratory for sample washing, or (3) are sampling uncontaminated tissue later in the season.

## Collecting Samples

Collect only one variety/rootstock combination per sample from vines of approximately the same age. Sample areas displaying different growing patterns separately. In poor areas a soil sample should be taken as well.

### Sample Size:

**Leaf blades** – in all cases with leaf samples we require about a small lunch bag of material or a “rounded double handful” of leaves to give us enough material to analyze.

**Petioles** – About 40 – 60 petioles per sample, with a minimum of 2 per plant.

### Stage of Growth vs. Plant Part

**Pre-bloom:** Youngest fully matured leaf

**Bloom or Fruiting on:** Leaf or petiole adjacent to fruit cluster selecting the youngest fully mature leaf.

Pre-Bloom

Bloom/Fruiting

