



THE TENDER FRUIT GRAPE VINE

A Newsletter for Commercial Fruit Growers

Volume 10, Issue 6

July/August 2006

Fruit Tree Leaf Analysis

Peter Zwart, Plant Nutrition (Hort.), OMAFRA

The last 2 weeks of July is the time to take leaf samples from your fruit trees. Foliar sampling is generally the most reliable tool for assessing the nutrient status of orchards. It gives you an idea of actual nutrient uptake and can reveal deficiencies that might not have any other symptoms. It's not too late to correct deficiencies for many nutrients in fruit trees with foliar sprays. Leaf sampling also gives you the luxury of confidently doing nothing if all is well.

If nutrient levels in an orchard are known to be stable and fertility management practices are unchanged, sampling every two to three years is sufficient. However, if there are known deficiencies or nutrient management practices are changed, sampling should be done every year until foliar nutrient levels are stable and any deficiencies are corrected.

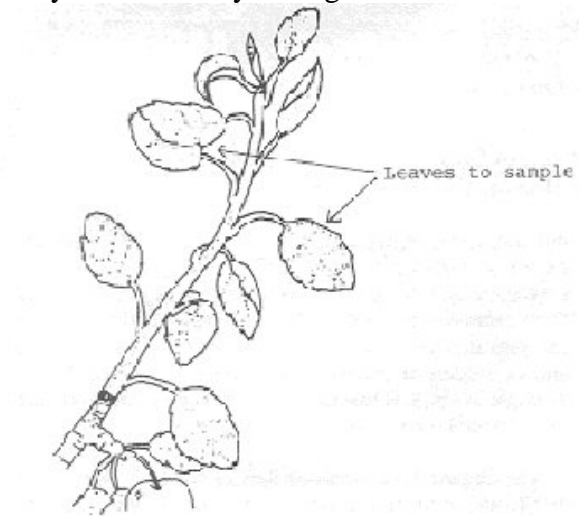
The samples are taken from shoulder-height, mid-shoot leaves of this year's growth that are fully mature as shown in the picture.

Avoid damaged, abnormal and spur leaves as well as those that are not fully expanded. Approximately 10 leaves from all sides of a tree can be taken from 10 trees to give a total sample of 100 leaves. If your orchard is variable you can break it up into logical management units to sample separately if practical. Otherwise, you could take fewer leaves from more trees to get your 100 leaves. Different varieties have different critical nutrient levels and should be sampled separately. Try to avoid collecting leaves from trees at the outer edges of the orchard. Put the leaves into a labelled paper bag to keep them clean and bring them to an accredited lab. Standard analysis includes N, P, K, Ca, and Mg, and costs less than \$20 per sample. If micronutrient excesses or deficiencies are suspected, these can also be analysed at an extra cost. A list of labs with prices can be found at

<http://www.omafra.gov.on.ca/english/crops/resource/leaf.htm>.

One of the more common nutrition problems found in Ontario orchards is nitrogen level, excesses being more common than deficiencies. Another common one is K excesses or deficiencies. Excess K can lead to Mg deficiency. Zinc, Manganese, and Boron deficiencies are found in isolated cases. Any of these problems can be found by leaf analysis, and most can be corrected in-season with foliar sprays. The cost of analysis is offset

many times over by savings in fertilizer costs or increases in yield and/or quality.



Editors note - Tree fruit leaf analysis samples should be taken in late July. Results and recommendations are only as good as the sample. One sample must contain 100 leaves. Take 5 leaves from each of 20 trees from each major variety. Do not mix leaves from different varieties or leaves from healthy or problem trees. The more leaves in a sample, e.g. 120-150, the better the sample.

Grape samples should be collected by September 1 and sent to the lab of your choice from the list of accredited labs. With grapes, only the stems of the leaves are selected from mature leaves or bearing grapes. Do not collect young or over-mature leaves. Collect 100 stems for each sample. A good random sample usually requires sampling several rows of grapes in the block.

Samples should be placed in paper bags marked with sample number, name, address, variety and age of tree or grape vine.

Lesser Peach Tree Borer – Is It Costing You Money?

Neil Carter, Tender Fruit and Grape IPM Specialist, OMAFRA

General folk wisdom has suggested that lesser peach tree borer (LPTB) is more prominent in Essex and Kent counties, but there are areas with high borer pressure in Niagara as well. Lesser peach tree borer will take advantage of even the slightest injury on a tree to lay eggs which hatch into wood boring larvae. In some cases they may be causing economic damage through reduced production and shortened tree life.



Figure 1. Adult LPTB on sticky trap. A pretty picture of this clear-winged, day-flying moth would be nice, but you'll see the vast majority of them like this – in a mass of messy moths on a pheromone-baited sticky trap. Some training is required to identify these borers as other species may be attracted to the trap.



Figure 2. LPTB pupal case. When the moths emerge, their pupal case is often left behind stuck to the ooze on a canker.



Figure 3. LPTB larvae in peach canker (head buried in ooze). Digging around a bit in oozing cankers will sometimes yield one of these larvae. In highly infested sites, they are not hard to find. LPTB overwinter in the larval stage, but unlike many insects, this species can overwinter in 2nd all the way to mature 6th instar larvae. In the spring, some are nearly ready to pupate while others need to feed for several months before emerging – that's why there's such a long, continual flight period for this pest.



Figure 4. Frass (insect excrement) from feeding LPTB larvae can often be found in or around cankers. The frass is fairly obvious as pale brown granular material at the center of this picture. In many cases, it is mixed with ooze in cankers, but is still readily found with a bit of practice.



Figure 5. Young peach tree with LPTB infested canker. This young tree is otherwise healthy having received good care, timely pruning, and adequate irrigation and nutrition. However, with LPTB-infested peach canker at this part of the trunk, its lifespan will be shortened. It seems to be producing well now, but will decline faster than it should.

There are a few management recommendations for this pest. Trees should be dipped in thiodan (endosulfan) mix before planting and trunk and lower scaffold limb sprays are recommended in the early years, especially where LPTB pressure is known to be high. There is no threshold based on

trap captures or anything else to help time the sprays. LPTB started flying in Niagara this year on May 24 and their flight will continue until late August or early September. Up to three sprays can be applied early in the season, but care must be taken with anticipated harvest of early varieties as endosulfan products have relatively long pre-harvest intervals (15 days). Direct these applications away from fruit – LPTB is completely uninterested in fruit anyway. Extension personnel in the US do not feel that adequate coverage is achieved for control of peach tree borers using air blast sprayers. Hand gun applications are more effective in this case.

Regular monitoring to look for signs of the pest is also important – even where you don't think you have a problem. Finding this pest early before it has become common in an orchard makes dealing with it much easier and less costly. Several years of attention to borers is necessary to achieve significant reduction in borer numbers when they become established in orchards.

Mating disruption (MD) of this moth is possible with a product called "Isomate-P" which is registered and available in Ontario. Like all MD products, it works best when applied before first flight and on large areas. In heavily infested areas, a combination of pesticides and MD may be needed to help lower the population over a few years.

And on a related borer note: greater peach tree borer (GPTB) were first recorded in sticky traps in Niagara this year on June 19. GPTB is a clear-winged moth similar to, but slightly larger than lesser peach tree borer (LPTB). Male GPTB are steel blue in colour with 3rd through 6th abdominal segments fringed with yellowish scales. This is not always easy to see in sticky trap caught specimens. So far this year though, I've had very few LPTB in GPTB traps or vice-versa. However, there are a couple other robust clear-winged moths that frequently shows up in both traps – they are quite distinct from either peach tree borer, so shouldn't cause much confusion. Unlike LPTB, GPTB generally lay eggs near the graft union and not on limbs. Management measures for LPTB would also help with control of GPTB. Although the LPTB spray timing is out of synch with the relative late flight of GPTB, residual activity of the last LPTB trunk spray should have some effect on GPTB.

Herbicide Injury – What Should I Do Now?

Leslie Huffman, Weed Management Specialist (Horticultural Crops), OMAFRA

Your crops are growing well, but your scout reports odd-looking plants in one area of the orchard or vineyard. On closer inspection, you agree that the plants are not looking well, and you suspect that herbicide drift is the cause. What are your first steps?

Diagnose the problem:

- Consider all possible causes of the damage. Disease, insect, nutrient deficiency, herbicide carryover, and environmental stresses may also cause symptoms that look similar to herbicide drift.
- Look at the pattern of symptoms in the field. Herbicide drift damage is usually worse next to the source of the spray, and lessens as you go further into the orchard/vineyard. Look along field edges (or in the lower parts of trees or vines if you suspect your own herbicide application).
- Symptoms in patchy areas (circles) may be an indication of changes in soil and/or changes in soil pH. Areas of low or high pH should be tested for herbicide carryover.
- Look for weeds with symptoms, both in your crop and in the fence lines.
- Look for evidence of spray application in the neighbouring fields, lawns, ditches, etc. Wheel marks, boom patterns, overlap on headlands are tell-tale signs of a sprayer having been there.

Contact the appropriate people:

- Talk to your neighbour or the sprayer operator to find out what was sprayed, when it was applied, (and who did the application).
- Contact your regional Ministry of the Environment office (in Niagara, call 1-800-263-1035) – MOE officers can do a site visit, take samples of tissue and soil, and have them analyzed for the suspect herbicides. Where appropriate, the

offending applicator may face charges under the Pesticide Act.

- Contact your insurance adjustor, and advise the applicator to contact theirs.

Document all details of the problem:

- Spray records for your fields (to prove it wasn't your sprays) and for the offending applicator will be needed.
- Weather records for the date of application will be needed, showing temperatures, wind speed, wind direction, and rainfall.
- Take lots of photos and record date and location on each photo. Repeat photos several times through the season.
- To document yield loss, you need to find a similar planting – same age, cultivar, rootstock, etc. At harvest time, you will need to document yields and quality from the damaged area, and from an undamaged area.
- For perennial crops like vineyards & orchards, it will be necessary to document the effects **for several years** after the damage occurred. Do not close the claim until the long-term effects of the injury are known.