Cornell University
Cooperative Extension

Lake Ontario Fruit Program
Your Trusted Source for Research-Based Knowledge

"*Fruit Facts*" – Monday, October 19 2020

Fall Special #1

As harvest is wrapping up for 2020, we'd like to finalize the season with a few short reminders on how to put the orchards to "bed" for the winter, and prepare for a better 2021 growing season. The first of the two-part series follows. Please keep an eye out for the Fall Special #2, which will come out in late October.

IPM Notes…*Janet van Zoeren*

Brown Marmorated Stink Bug – high trap counts in WNY

This year we have been catching higher-than-normal numbers of BMSB in orchards in western New York – with several sites catching **up to 20 stink bugs in a single trap in a week**.

The threshold is generally considered to be a cumulative 10 BMSB adults per trap since the last spray (so if you trap 6 in a week, and then trap 5 the next week, it would be considered time to spray).

It is less well understood how much damage we should expect to see, due to high stink bug numbers. So far this year we have seen some, although variable, stink bug damage. At one site, in a survey of five rows of high-density apples, we found only 2 apples with stink bug damage (both in a corner near to the woods). In other locations, at worst, stink bug damage can already be seen on several apples per tree.

Stink bug damage: note the stylet hole visible on the surface and corking that reaches the skin. Photos by Liz Tee.

Stink bug damage is not immediately obvious – often damage is subtle at harvest, but fruit will develop corking and bruising in storage. This is one of the reasons it is recommended to trap for stink bug, and to spray (at least the orchard edges) if you reach the threshold – by the time you see damage it is too late to do anything about it.

To make things more complicated, stink bug damage can be mistaken for hail, bitter pit, apple maggot stings, or other disorders. Investigation with a handlens will allow you to see the hole where the stink bug fed through. If you'd like a 2-page resource on differentiating those symptoms, I will be happy to send it to you. **If you suspect stink bug damage, please get in touch with me by email or phone – I am interested in learning more about the prevalence and distribution of stink bug damage in the region.**

Fire Blight fall clean-up

Many orchards across New York state saw very high levels of fire blight this spring and summer, due to a perfect storm of weather conditions during bloom. That means many orchards will be going into the winter with higher than normal levels of *E. amylovora* inoculum. It is always a good idea to go through and remove any fire blight strikes or cankers during winter pruning, but this year will be especially important.

What is the perfect timing to make those clean-up cuts in the orchard? The answer I've come to is – whenever you are most likely to get it done.

If you have labor crews available as harvest winds down, it would be ok to move them into fall pruning and fire blight removal in your mature orchards. However, it is important you keep a watchful eye on the long range forecast and suspend pruning when a severe drop in temperature is forecasted after a pruning cut. Recently pruned trees can be damaged when temperatures suddenly drop 50-60 degrees to 0°F or below. This increased sensitivity is greatest within 48 hours after pruning and gradually declines over a 7-10 days period.

Even better, if you will have time to return to it, would be to spent a day this fall spray painting where the pruning cuts should go (because it can be much easier to see the shepherd crook flags and places where the leaves are clinging to the tree in the fall than it will be later). Then come back through in winter or early spring to make the cuts.

Fall pre-emergent herbicide reminder

Mike Basedow, from the Eastern New York tree fruit team, recently wrote some reminders about fall pre-emergent herbicide applications. The following article is predominantly his material, edited to be more applicable for our region.

Fall application of pre-emergent herbicides takes one more time-sensitive task off the spring to-do list, and allows you to take advantage of our historically frequent fall rains, to wash in the product. Below are a few things to keep in mind:

In a 2014 Hudson Valley trial, fall-applied Alion provided the best residual control into early summer, followed by Chateau and GoalTender. All treatments were applied with paraquat. Full details on this trial can be found in the following **Fruit Quarterly article**. Remember that many herbicides cannot be used in young orchards or in certain conditions, so be sure to read the label carefully. Feel free to contact me for advice or recommendations on choosing an herbicide product.

Additionally, some products will require moist ground, or moisture within a given time period following application.

Different herbicides are better suited for controlling different weeds. To maximize your weed control success, first determine which species are present in your orchard, then consult the **herbicide selection spreadsheet** to choose materials.

If tall weeds are present at the time of application, residual products should be paired with a burndown material, such as paraquat. Residual products are most effective when applied to a relatively clean herbicide strip for optimum soil contact. Litter on the herbicide strip, such as fallen leaves and drops, should be cleaned up ahead of the application.

If perennial weeds are a problem in your orchards, systemic materials will likely be necessary to mitigate perennial weed issues, and it may require multiple seasons to get them fully under control. Avoid applications of glyphosate (Roundup) in the fall due to concerns that contact with green tissue will result in translocation of the active ingredient into the tree, with a negative impact on winter hardiness. 2,4-D is recommended in fall applications for perennial broadleaf control.

As always, read each label carefully before applying!

Any questions about pest management, please call or email me: jev67@cornell.edu, 585 797 8368.

Horticultural Notes…Mario Miranda Sazo

Soil pH determination is more reliable in the Fall: Now is a good time to take soil samples. By doing so you can compare the results every 2-3 years. Soil sampling in the fall can provide valuable information. Moreover, taking a representative soil sample is important to determine lime and fertilizer requirements and avoid costly over or under fertilization. Most soils should be sampled every 2 - 3 years; more often for sandy soils, or problem areas. Fall is generally considered to be the most reliable time to pull samples, especially when it comes to pH. Soil pH fluctuates and tends to be lower in the summer when temperatures are higher and soils are dryer. Soil pH determination is more reliable in the Fall when soil moisture is a bit higher. Please make sure you maintain an **optimal soil pH around the target value of 6.0 to 7.0. For Honeycrisp, we recommend targeting soil pH 6.5 to 7.1.** Use tools that are clean and free of rust. Avoid brass or galvanized tools or containers that can contaminate samples with zinc or copper. Stainless steel probes or augers are best because they collect a continuous core through the entire sampling depth with a minimum disturbance of the soil. Avoid shovels or trowels. Collect samples in a clean plastic bucket or plastic bag. Avoid collecting or shipping wet samples.

Maintaining optimal soil pH: In the past we have found a few established orchards with low levels of soil pH (pH @ 4.8 or lower in some cases) and very low levels of Ca (less than 800 lbs. Ca/acre), Mg (less than 200 lbs. of Mg/acre) and K (less than 100 lbs. of K/acre). This low pH value and the low levels of Ca, Mg and K make it unlikely to sustain high yields of high quality fruit the following years. This situation will be very detrimental for varieties such as Honeycrisp that are susceptible to bitter pit and other Ca-deficiency related disorders. For this kind of situation (where both Ca and Mg are low) we recommend the use of dolomitic lime to provide both Ca and Mg. Try to find a dolomitic lime that has a ratio of Ca content to Mg content around 8:1. This would allow you to increase soil Ca and Mg proportionally. If Mg level is above 200 lbs./acre but the pH is still low then use calcitic lime ($CaCO_3$) which does not have Mg. If a low soil pH (as described above) is coupled with a soil buffer pH of 5.52, the suggested lime rate at 100% ENV is 5 tons per acre if you broadcast to the entire acre of orchard (i.e. established at 3x14ft.). Please keep in mind that all the lime requirement obtained on a soil analysis report or from any lime table is at 100% ENV (Effective Neutralizing Value). To convert that to an application rate of a specific lime material, the lime requirement at 100% ENV must be divided by the ENV of the lime material. For example, if the lime requirement at 100% ENV is 3.5 tons/acre, the actual application rate for a lime material that has an ENV of 70% should be 3.5/0.7 = 5 tons/acre.

What if the soil pH is close to 6.5 but Calcium is still a bit low? If your soil pH is just below 6.5, we recommend a maintenance application of 1 to 2 tons of lime per acre every 2 years based on your soil analysis. If Mg level is low use dolomitic lime which is one of the cheapest options. If Mg level is above 200 lbs./acre then use calcitic or high cal lime.

What if the soil pH is above 7.0 but Calcium is still a bit low? If your soil pH is above 7.0, but the calcium level is still on the low side, you may consider the application of Gypsum (CaSO4), which does not raise pH. It can be applied this time of the year. The amount you need to apply depends on your soil Ca level; one ton of gypsum provides about 460lbs of Ca.

Foliar sprays of urea, solubor and soil-applied potasium fertilization in the Fall: For blocks with heavy crop load and marginal leaf nitrogen (right around 2% or even less), we suggest you make one to two sprays of 3% foliar urea (25 lbs. urea/100 gal) + 2 lbs. of Solubor/100gal to help these trees recover. Fall is a good time for K application. Please adjust your routine fall K application based on fruit yield block by block. Generally, for Gala and many other varieties, we recommend to apply 100 lbs. of potash at a fruit yield of 1500 bushes/acre, but for Honeycrisp, we suggest you reduce the K application by 25 to 30% on the same fruit yield, and skip the application if the soil has over 300 lbs. of K.

Defoliation of on-farm nursery trees and digging: After the nursery tree is fully grown the tree must be transplanted to the orchard. All commercial nurseries dig the trees in the fall and either deliver them immediately to the grower for fall planting in the orchard or store them for spring planting. Many apple growers do not have a suitable tree storage facility forcing them to either fall plant or leave the trees in the nursery until spring.

Leaving trees outside in the on-farm nursery is risky if we have a harsh winter since the trees may receive some winter damage. If trees are to be left out over the winter then N fertilization of the nursery should be curtailed in early August to allow the trees to harden off well before winter. If trees are to be dug and stored they can be pushed with N fertilizer until mid-September which results in a larger tree.

Trees should not be dug with leaves on them. Leaves transpire large amounts of water and can dry a tree out in a matter of days and the leaves become moldy in storage. Trees in commercial nurseries are usually sprayed with a chemical to aid in defoliation. We recommend the use of copper chelate plus urea (see Table 1). Be careful not to exceed the recommended rate of Copper chelate because higher rates can damage lateral buds which are needed next year in the orchard for branching. Defoliation sprays must be applied 4 and 2 weeks before expected digging.

Trees should be dug in early November but before the ground freezes or the first severe cold snap which usually occurs in late November in Western NY.

Table 1. Recommendations for chemical defoliation of nursery trees in NY State.

Timing[1]	Product	Concentration	Rate of Formulated Product
Early October to mid-October	Copper EDTA (7.5%) plus Urea plus Silwet organosilicone surfactant	2% 1-3% 0.1-0.25%	256 oz/100 gal 1-3 lbs./ 100 gal 1-2.5 pt./acre

[1]Apply 4 and 2 weeks before expected digging. With warm temperatures complete defoliation is achieved 4 weeks later but with cool temperatures 5 weeks are required.

We will be discussing more details about fall planting, grading, and storing in the next *Fruit Facts special edition* to be sent by the end of this month.