



## **“Fruit Facts” – Monday, November 2 2020**

### **Fall Special #2**

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. We sent out the first of the two-part series on the 19<sup>th</sup>. We hope everyone had a good season, and we’ll look forward to starting up the Fruit Facts again next spring!

### **IPM Notes...Janet van Zoeren**

**Webinar Announcement: Managing Stone Fruit Bacterial Disease Problems Webinar.** Presented by the University of New Hampshire Cooperative Extension.

Wednesday, November 11, 2020, 6:00pm - 8:30pm

Registration link: [https://unh.zoom.us/meeting/register/tJEldOmqqz8vHNf\\_tq2IAwSWLSNj36vVzdmy](https://unh.zoom.us/meeting/register/tJEldOmqqz8vHNf_tq2IAwSWLSNj36vVzdmy)

This meeting has been approved for 1.5 recertification credits (categories 1A, 10, and 22) by the NYSDEC. In order to receive recertification credits, attendees must meet all of the following requirements:

1. **Register for the event at the link above by November 6**, providing full name and NY applicator ID number in the appropriate registration fields.
2. Send a scanned image of your ID to [mrb254@cornell.edu](mailto:mrb254@cornell.edu) no later than November 9.
3. Log in to the webinar at 5:45pm to visually verify yourself with your ID through your computer webcam (visual verification required to receive credits).
4. Watch the entire meeting from your own computer or device (multiple employees cannot watch around a shared computer).
5. Participate in poll questions that will be asked periodically throughout the meeting.

Any questions about the webinar or receiving credits can be sent to Mike Basedow at [mrb254@cornell.edu](mailto:mrb254@cornell.edu).

### **Fall Sanitation – leaf removal**

Once the leaves have fallen from your apple or other tree fruit trees, this is a good time to use Urea and/or flail mowing to clean up leaves and remove possible sources of inoculum from within the orchard. This is typically considered to be used against apple scab, which was not particularly prevalent in most locations this past year. I would recommend you still use some form of leaf removal – both to remove other disease inocula (i.e. Marssonina overwinters in leaf litter) and to take advantage of the season to eliminate any remaining scab inoculum to as close to zero as possible for next summer.

Cherry leaf spot also overwinters in leaf litter, so it will be worthwhile to use Urea and/or leaf flailing in your cherry orchards as well.

Urea on its own is fairly effective, and when combined with flail mowing is extremely effective. Urea should be applied as close to leaf fall in the autumn as possible. Dissolve 40 pounds of feed grade urea in 100 gallons of water (i.e. a 5% solution), and apply at 100 GPA. Flail mowing can be used in the fall after Urea application, to increase efficacy.

Note – it is not recommended to use any product to encourage leaf fall! The tree “knows” how long to hold on to the leaves, to maximize carbohydrate reserves for winter, and to help signal the tree to reach full dormancy. Removing leaves too early can lead to decreased cold hardiness.

### **Fall Sanitation – pruning**

It is always a good idea to go through and remove any fire blight strikes, cankers, mummified fruit, and other damaged or

diseased tree tissues during winter pruning. This year, given the high levels of both fire blight and Botryosphaeria canker, it will be especially important. In cherry orchards, you will be watching for black knot, as well as rotten fruit, cankers, and other damaged tissues.

If you have labor crews available now, it would be ok to move them into fall pruning and fire blight removal in your mature orchards. Remember that recently pruned trees can be damaged if temperatures suddenly drop from 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 herbicides

You may want to apply an herbicide this fall, weather permitting, to take the pressure off the spring pre-emergent. 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.

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 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!

### Watch for scale insects!

San Jose Scale hotspots can often be identified as areas where the tree holds onto its leaves into the winter; then under closer inspection you will be able to see the insects overwintering on the tree bark in the “black cap” stage. As you move through the orchard pruning and doing other tasks this winter, watch for scale hot spots, and mark or map those to remember where you will need to focus delayed dormant oil applications in the spring.



San Jose Scale infestation.

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

## Horticultural Notes...Mario Miranda Sazo

**Carbon sequestration and implications for soil health, water-holding capacity, and adoption of renewable energy sources:** I recently had the opportunity to watch [Panel - Carbon sequestration with greenhouse gas mitigation in agriculture: what is really possible?](#) Although the topics and discussion did not directly address tree fruit perennial systems or the impacts of the NY apple industry, the discussion provides a basic understanding of current and future effects of climate change and mitigation strategies. The carbon sequestration topics and main take-home message will be useful to growers interested in improving drainage, fertility, nutrient cycling, decreasing wind/water erosion, and minimizing compaction (among many other environmental benefits). The panel discussion will also be useful for growers interested to learn about the pros and cons of renewable energies (wind/solar) to minimize fossil fuel consumption. We expect that in the near future more NY farmers will switch to renewable energy sources. For more videos and info about this, please visit: <https://www.cornell.edu/video/kc-orchards-climate-smart-farming>

**Fall planting.** Fall planting can be a good strategy if properly done and at the right time. We are currently in a wet period and will be experiencing the effects from tropical storm Zeta by the end of this week. Early next week, we expect more rains, snow showers, and low temps which will probably delay tree digging until next weekend. We expect better soil drying

conditions for tree digging during the week of November 9. Depending on weather conditions, some WNY on-farm nurseries (Table 1) will be dug in early November for fall planting this year. In general, fall planted orchards have shown better growth the first year compared to spring planted trees. Fall planted trees have also shown better blooming synchrony with older established orchards and thus are more likely to be protected for fire blight with streptomycin spray programs on the farm. New spring planted trees bloom later than established orchards when temperatures are warmer, thus they are at higher risk of blossom blight if left unprotected or with fewer streptomycin sprays.

Table 1. Three methods of growing apple trees in on-farm nurseries in NY State.

Standard two-year tree	Two year 'grow-through' strategy (Cornell strategy)	Three year 'grow-through' tree strategy
Plant rootstock in year 1 Chip-bud in August Grow the scion in year 2	Bench graft rootstocks in March of year 1 Then plant in field in late April/early May of first year and grow the scion in year 1 Leave for a second year in the nursery without heading the tree at end of first year	Plant rootstock in year 1 Bud in August and grow the scion in year 2 Leave for a third year in the nursery without heading the tree at end of second year

Fall planting can also be a good strategy to avoid planting delays in the spring due to unpredictable rainy weather conditions and/or late snow cover. Sometimes a grower can lose 30 or 40 days just waiting for the soil to be dry out to the right moisture conditions when trying to plant early in the spring. Fall planting also allows early root establishment and maximum tree growth which are critical for a new high density planting the first year. But is fall the best time to plant, or are there any problems or concerns to consider?

**Successful fall planting requires a combination of conditions:** (1) a well-prepared site with good drainage, weeds under control and minimal rodent and deer populations, (2) mild weather and warm soil temperatures for several weeks after planting to encourage root establishment, (3) nursery trees that begin their dormancy process early, including leaf drop, (4) a nursery supplier that is willing to fall dig trees, (5) sufficient labor to plant trees quickly without drying, and (6) proper soil conditions to re-close the soil around the roots without leaving air pockets. The soil should flow when plowed or disced to allow the soil to flow around the roots as the tree planter passes. This last point is probably the most critical. There are some fall seasons in Western NY that are just too wet and proper soil conditions are never achieved after Oct 15. It may be a costly mistake to "mud" tree in if the soil is too wet this year. This can lead to tree dessication and death. In wet years we recommend that the trees be left in the nursery or stored until the spring.

**If you can satisfy the conditions listed above, the following practical tips can help you have a successful fall planting:**

1. Nursery trees need to experience cool temperatures and short daylengths to encourage dormancy. Frost will promote leaf fall, and some nurserymen use copper sprays to encourage leaf abscission. We suggest a combination of copper chelate, urea and silwet applied 4 weeks before digging. If the trees are moved before dormancy, they could begin to grow again, which could predispose them to winter injury.
2. Once the trees show signs of dormancy, they can be dug and moved. Total leaf removal is necessary only if trees will be in storage for some time, to prevent diseases. It is critical to prevent roots from drying out, especially since they may not be fully dormant. Use covering tarps and wet down any roots that seem dry.
3. The roots and soil need to be in intimate contact immediately after planting to ensure the trees survive. Where a tree planter is used, the presser wheels need to be adjusted properly. Hand planted trees should be tramped well around the trunk. A follow-up watering is recommended if a soaking rain does not occur within a few days.
4. There is a risk of winter injury with fall planted apple trees, especially to the lower trunk and scaffold branches, because they are the last to harden off fully. Mounding up soil around the trunk has an insulating effect against sudden freezes, and can be left to prevent insects from boring into the rootstock but it should be removed the next spring to prevent scion

rooting. If all these precautions are followed, fall planting of apple trees can help your new orchard get off to a quick start next spring.

**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 ( $\text{CaCO}_3$ ) 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 ( $\text{CaSO}_4$ ), 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 potassium 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.

Every effort has been made to provide correct, complete, and up-to-date pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly, and human errors are still possible. These recommendations are not a substitute for pesticide labeling. Please read the label before applying any pesticide. Copyright 2020. All rights reserved. No part of this material may be reproduced or redistributed by any means without permission. Cornell Cooperative Extension provides equal program and employment opportunities.

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