

A partnership between Cornell University and the CCE Associations in these five counties: Monroe, Niagara, Orleans, Oswego & Wayne

Fruit Notes

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

Cornell Cooperative Extension Lake Ontario Fruit Program

Volume 23 Issue 3 Ma

March 16, 2023

Predicted Green Tip Date for WNY in 2023

Craig Kahlke

Fruit trees must experience cold but non-freezing temperatures in the fall and winter to complete "rest". In New York this usually occurs in late December or January. Once rest is completed, buds can respond to temperatures greater than 40°F and begin to grow. However, a significant accumulation of warm temperatures (above 40°F) is required before green tip (GT); although non-visible development inside the closed bud is occurring with each hour of warm temperature. We model this process by using growing degree hours (GDH). Experimental data has shown that about 2000 GDH (base 40°F) are required from the end of rest completion until GT for early breaking varieties such as Idared, RubyFrost, and Zestar™. At about 2200 GDH, most varieties in the normal budbreak window will be at GT. In most winters in NY, the cold temperatures of Jan. and Feb. limit heat unit accumulation so that even though rest has been completed in late December or early January, buds do not begin to develop until warmer temperatures arrive in March and April.

Chill Unit and Heat Unit Accumulation During the Winter of 2022/2023

The winter of 2022/2023 has been quite variable. November was fairly normal, but December and January were among the warmest on record. Things got close to normal for temperatures in February. Thus far in March, we've had below average temperatures that have hindered bud development. In fact, we haven't accumulated a single GDH in 3 weeks. Using the chill unit model developed in North Carolina, which is an improved version of the original chill unit model from Utah, I've estimated that for both inland and lake sites, chill units began to be accumulated in late Sept. (22nd). Warmer lake temps moderated the temperatures and these sites reached an accumulation of 1080 chill units on Dec. 29, 2022. For inland sites, rest was not achieved until about 5 days later, on Jan. 3, 2023. It is theorized that warmer lake water temperatures have moderated the lake sites, keeping them warmer, and thus reaching rest earlier. Above average temperatures in late December and early January allowed the lake sites to start accumulating heat units, and they've remained significantly above inland sites. However, we expect the inland sites to catch up, as spring daytime temperatures are usually warmer inland.

My calculations of GDH in lake sites since the completion of rest, trees have accumulated ~822GDH, and only 475-484 GDH for inland sites. This is significantly behind where we were at this time last year. The forecast for the next three weeks looks to remain cooler than normal, with highs only in the 30's and 40's, with lows in the 20's and 30's. If I use the forecasted temperatures, we will only have accumulated 1184 GDH by April 5 for lake sites, and 723-851 GDH for inland sites. So, if we can believe the forecast, green tip could be later than our "new normal" this year, perhaps in mid-April. However, if actual temperatures are significantly higher than forecasted, GDH will accumulate quicker and GT could be earlier, but likely still in April. Stay tuned!

Intentional Delay of Dormant Pruning for 'Honeycrisp' & Other Important Biennial Cultivars (Fuji)

Mario Miranda Sazo and Terence Robinson

When pruning a Honeycrisp block without knowing the floral bud percentage (% of floral buds in a 100 bud sample of spurs from randomly selected shoots in a Honeycrisp block), you are risking removing too many of the flower buds if return bloom is low. If the previous crop load was too high then flower bud numbers will likely be below or close to the target number and pruning is likely to remove too many. Floral bud identification at the dormant stage is not easy without dissecting buds and viewing them under a microscope. It can only be accomplished by a professional lab or by a trained grower and/or employee. For this reason, it is helpful to delay pruning until the spring. **We suggest that annual bearing varieties (Gala, McIntosh, Empire, NY-1, etc.) be pruned first and the biennial bearing varieties last.** There is a 3-4 week window from green tip to bloom when it is easy to identify and count flower buds per tree and then prune to the target flower cluster number at that time.

However, many growers who have significant acreages of Honeycrisp (or other biennial bearing varieties) cannot wait to prune all of their trees in the spring. If you must begin pruning biennial varieties during the winter, we suggest two approaches you could consider.

1. Before pruning determine the number of flower buds per tree by sampling 10 branches (3/4-1 inch in diameter) from 5 representative trees in the orchard and dissecting all the spurs on the branches and examining the dissected buds under a microscope to determine what percentage of the spurs are floral. Then, adjust pruning intensity to ensure that the target number of flower buds are left on the tree. Few growers are prepared or trained to sample branches, dissect, and examine buds with a microscope.

To help growers with this task, review Mike Basedow's article in this newsletter. You can also view our video on precision pruning

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Lastly, we remind growers that to avoid biennial bearing of biennial varieties and to improve fruit size of annual varieties, precision pruning is essential. We suggest counting the total number of flower buds on 5 representative trees and then through pruning the removal of extra flower buds leaving a precise number of buds. To accomplish this the first step of precision pruning is to determine the target number of final fruits at harvest which is a function of desired fruit size, yield and the potential of the trees. Secondly, calculate the number of buds to leave based on the recommended but load and thirdly, adjust the number of buds to be left after pruning by the percentage of buds that are floral. The following is an example of a final fruit number target and the calculated spur number to leave after pruning on Tall Spindle Honeycrisp trees planted at 3X11 ft. spacing (1320 trees/acre).

Target yield = 900 bu/ac * target fruit size (72 count @260gr) / tree planting density (1,320 trees/acre) = 50 fruits /tree. Remember we suggest leaving a few extra flower buds as insurance against frost or poor set. Based on the most recent Cornell Honeycrisp pruning research we are currently suggesting that growers leave 80% more flower buds than the target fruit number as insurance. In the example where we need 50 final fruits/tree we suggest increasing that number by 1.8 = 90 flowering spurs. Lastly, if only 50% of the spurs are floral then the number of spurs to leave after pruning would be double that number (180 spurs). The table below gives bud load factors and target final flowering spur numbers for annual and biennial bearing cultivars.

Bud load factors for		Target Final Flowe	ring Spur Number	
annual and biennial	60 fruit per tree	80 fruit per tree	100 fruits per tree	120 fruits per tree
bearing varieties				
1.5 buds per final fruit	90 flowering spurs	120 flowering spurs	150 flowering spurs	180 flowering
number for annual				spurs
bearing varieties				
1.8 buds per final fruit	108 flowering spurs	144 flowering spurs	180 flowering spurs	216 flowering
number for biennial				spurs
bearing varieties				

Performing Floral Bud Evaluations on Honeycrisp Ahead of Precision Pruning

Mike Basedow, CCE-ENYCHP, Northern NY

(Mario's note: The following article was originally written for Champlain fruit growers and published a few weeks ago. It is still very relevant for the current bud apple phenology in WNY. Please let me know if you are able to conduct floral bud evaluations this season. I am very interested to know your results for Honeycrisp and Fuji. You can email me to mrm67@cornell.edu, thanks!)

I recently evaluated two Honeycrisp blocks in the Champlain Valley for their percentage of flowering buds so the growers could adjust their pruning practices. The first block is a mature planting on M.26 rootstock, trained to a vertical axis system. Bloom was heavy in this block in 2022. The grower began thinning at bloom in an effort to promote good return bloom in 2023.

The second block is a mature planting on M.9 EMLA, trained to a tall spindle system. Bloom was heavy in this block in 2022, despite winter damage to the king buds. The grower also began thinning at bloom.

This M.26 block averaged 34% strong floral buds, 45% weak floral buds, and 26% vegetative buds at my assessment last week. The M.9 block averaged 64% strong floral buds, 21% weak floral buds, and 15% vegetative buds.

Strong floral buds contained a full cluster of kings and laterals. I expect these buds will set fruit. Weak floral buds were smaller, and often only had a single king in the cluster. I think these are going to be the smaller, single king flowers we often see on Honeycrisp, and are much less likely to set a fruit. Vegetative buds only had leaf primordia in the buds, no floral parts were found.

Given the lower quantity of strong floral buds in the M.26, I would advise pruning lightly in this particular block this season, leaving extra insurance buds since we can assume a higher proportion of buds will likely not set fruit this season. I think the M.9 block can be pruned a bit more heavily, all else being held equal. With the warm temperatures we've experienced in February so far, this might be the year to leave extra insurance buds this year in case we have an early green tip.

These are of course is just two blocks, and only serve as an example. Your Honeycrisp blocks are likely to vary in their percentages of floral buds this year, depending on:

- your bloom density in 2022,
- your thinning practices,
- and your return bloom practices, along with other more difficult to define factors like tree stress during floral bud initiation.

With all that in mind, I *generally* expect we'll have a lighter return bloom in Honeycrisp this year in the Champlain Valley where bloom was strong and trees were set heavily last year, and vice-versa. To be certain though, knowing your percentage of floral buds can be helpful in determining how hard to prune this winter if you are planning to do some precision pruning.

If you are interested in evaluating buds in your own blocks,

here are some of my thoughts from the experience:

- I followed the protocol of two branches (one each from the upper and lower canopy) from 5 representative trees per block.
- I looked at 10 spurs per branch, unless the branch had fewer than 10 spurs. If a spur had multiple buds, I chose a single bud from that spur at random. Since Honeycrisp spurs also have a tendency to produce bourse shoots, terminal buds on these were also fair game.
- I used a single edged razor blade to cut through the middle of each bud length-wise (figure 1), and looked at the buds under a table top dissecting scope (figure 2). These can be purchased online for around \$100. You're also welcome to come in and use the one at the Clinton County CCE office.



Figure 1. Cutting buds to evaluate under the scope. Try to cut as close to down the center as possible to make the floral tissues easier to see.

In figure 3, you can see what a floral bud (top) vs. a vegetative bud (bottom) looks like under the scope. The vegetative buds are fairly narrow, and will only have leaf primordia at the tip of the bud. Floral buds will appear more rounded, and will have small, light green floral tissues at the tip of the bud. These can be difficult to tell apart at first, so I recommend cutting open a few practice buds until you get your bearings on what is what.

- I find Honeycrisp particularly challenging to tell apart (it is Honeycrisp, after all). I also looked at buds with a hand lens, but found I couldn't distinguish the vegetative vs. the floral buds very readily with it.
- After getting into the swing of things, each block was taking me about 70 minutes to fully assess. This does not include the time it took to cut the limbs from the orchard.

So, I recommend giving it a try if you have the time and interest. As stated above though, it can be very difficult to tell them apart, so you might want to prune lightly now, and then make more precise pruning adjustments after green tip when you can tell the buds apart on the tree. Feel free to give me or Dan a call with questions.



Figure 2. My scope setup. A dissecting scope like this can be purchased online for about \$100.



Figure 3. A floral bud (top) vs a vegetative bud (lower). The vegetative bud is narrow, and only shows leaf primordia at the tip of the bud. The floral bud is more rounded, and shows light green floral tissues at the tip of the bud. Photo credits courtesy of Jon Clements and Win Cowgill.

Make sure you're signed up for the Fruit Facts supplemental!

By Janet van Zoeren and Mario Miranda Sazo

Spring is right around the corner, and we are already getting started preparing this season's Fruit Facts newsletter issues. As a reminder, the Fruit Facts comes out at least once a week (2-3 times during the thick of the grower season) and will provide you with timely and concise information about horticultural and pest management priorities.

Signing up for the Fruit Facts is easy – when you enroll in our program, you just need to mark interest in receiving it, and add the additional cost to your total. If you are enrolled, did not sign up for Fruit Facts, and would like to do so, please contact Janet (jev67@cornell.edu) or Natalie Mrzywka (nlm53@cornell.edu).

We plan to begin publishing Fruit Facts at the end of March, and we'll be right there with you throughout the rest of the 2021 growing season!

Spanish translation needs survey, Special Permit Training, and Introducing Mary "Bess" Lewis in the WNY fruit region

Mario Miranda Sazo and Janet van Zoeren

Spanish translation needs survey: Multiple people via several venues have brought up to us a need for additional translated materials into the Spanish language. There is a lot of nuance to understanding what materials should be translated, vs how much training emphasis we could place on helping Spanish speaking employees to better understand English language instruc-

tions and pesticide labels/pesticide certification exam, vs if there is need to provide training for middle managers to be able to better communicate to their employees in the Spanish language.

In order to better understand what resources, trainings and materials we at CCE can provide you, we have put together a survey, which you may have already seen at the March 3rd virtual conference or via an email blast, to get your feedback on where we should focus our time.

Please take 10 minutes to fill out the following survey, to help us understand how best to help you!

https://cornell.ca1.qualtrics.com/jfe/form/SV_5uvHbKCa10xZEWy



Scan with your phone's camera or QR reader app to take the survey!

Special Permit 'Handler' Training: Speaking of Spanish (and English) language pesticide safety trainings, it is that time of year when we need to get all workers who will be applying restricted use products either certified as pesticide applicators via taking the full exam, or as handlers via the Special Permit process. This year we will be offering Special Permit training in person — On <u>April 11th in Wayne county</u> and on <u>April 12th in Orleans county</u>. Please visit our website (<u>lof.cce.cornell.edu</u>) for more information and to register, or give me a call if you have questions (585 797 8368).

Welcome and introducing Mary "Bess" Lewis to WNY fruit growers! We are very happy to introduce Mary who joined the <u>Cornell Agricultural Workforce Development</u> team on December 15, 2022. During the 2023 growing season, we plan to introduce Mary to several WNY fruit growers and their Spanish-speaking employees. Please contact Mario (<u>mrm67@cornell.edu</u>; 315-719-1318), if you would like to schedule a visit with Mary. You can also contact her directly to <u>ml2656@cornell.edu</u>; 607-255-1891.

Mary "Bess" is a bilingual educator who focuses on developing Spanish-speaking and ESL agricultural supervisors and managers. Born in Maryland, but having grown up in Bolivia, South America, she understands the cultural differences and communication challenges that can exist in the workforce. After studying in the Universidad Evangélica Boliviana, she transferred to Greenville University in Greenville, IL where she completed her BA in Spanish with a minor in Communica-

tions and went on to complete a Master's in Teaching. She and her family have managed their own grain farm and owned a fertilizer, chemical and seed business in Southern Illinois. They moved to New York in 2019 to support the farm businesses of this area. She is passionate about the success of the people that work on the farms that feed our world.

Bess's job role is to focus on teaching supervisory and leadership skills to the many Spanish-speaking team leaders, supervisors, and middle-managers in New York agriculture. She will strengthen the leadership abilities of this key part of the farm workforce and help NY farms enjoy a more stable and successful workforce. Spanish-speaking employees will gain a new avenue to enhance their farm careers as they grow their leadership and management capabilities. The Cornell Agricultural Workforce Development Spanish Team hopes to have their first online class: 'Transition to Supervisor' ready for Spanish-speaking supervisors this November.

Welcome Mary "Bess" Lewis! You will be an important asset for the professional development of Spanish-speaking employees in the Lake Ontario Fruit Region. Thanks!



Farm Employer Input Needed! NY Farm Labor in Transition Survey

Rich Stup, Cornell Ag Workforce Development

New York farm employers are navigating enormous changes in farm labor markets and regulations in recent years. It is critical for farm managers and decision-makers to have accurate and up-to-date information about the farm workforce.

The NY Farm Labor in Transition Survey: <u>https://cornell.ca1.qualtrics.com/jfe/form/SV_b4xjhVpK54WzCGG</u>

collects farm managers' perspectives on these important issues. Please take about 20-30 minutes of your time to include your response as a NY farm employer. All data will be kept confidential, results will only be reported as group data, and no personally identifiable data will be reported. Respondents will receive a summary of the results.

Most of the survey can be completed with information that you have in mind, but please be prepared by assembling the following data from your payroll records:

- 1. The number of full-time, part-time, seasonal, and H-2A positions you employed in 2021 and 2022.
- 2. Total **regular** hours worked by all of your hired employees in 2021 and 2022.
- 3. Total **overtime** hours worked by all of your hired employees in 2021 and 2022.
- 4. Number of positions filled by owners and unpaid family members, and hours worked by them, in 2021 and 2022.
- 5. Number of employees who left voluntarily or were fired in 2021 and 2022.

Access the survey here: NY Farm Labor in Transition Survey: <u>https://cornell.ca1.qualtrics.com/jfe/form/</u> SV_b4xjhVpK54WzCGG

Please complete only one time per farm business.

Respirator Fit Testing Clinic—upcoming dates

Orleans clinic will be offered on April 4th and 5th.

Stay tuned for a Wayne county date and location!

Bassett Healthcare Network New York Center for Agricultura Medicine and Health		a SAVE THE DATE NYCAMH Farm Fit Testing Clinics		
Date	Time	County	Location	
March 2-3	March 2: 9 AM - 5 PM March 3: 9 AM - 12 PM	Suffolk	CCE Suffolk County, Riverhead	
March 9	10 AM - 3 PM	Ulster	Hudson Valley Research Lab, Highland	
March 16	10 AM - 3 PM	Columbia	Yonder Fruit Farms, Valatie	
March 23	10 AM - 3 PM	Ontario	CCE Ontario County, Canandaigua	
March 28	10 AM - 4 PM	Onondaga	Farm Services Agency, Lafayette	
April 4-5	April 4: 1 PM - 5 PM April 5: 9 AM - 12 PM	Orleans	CCE Orleans County, Albion	
May 16	10 AM - 4 PM	Albany	Capital District Regional Market, Menands	
May 24	10 AM - 3 PM	Orange	Pine Island Fire House, Pine Island	

Call 800-343-7527 or email fittest@bassett.org to schedule an appointment or if you have any questions. ***To ensure that we are fully prepared for each clinic, we will need names and respirator information for each worker needing a fit test.***



Important Changes for 2023

New Rates for Services: Due to rising costs and limitations in our funding, we are unable to maintain the same cost subsidy for our services.

Fit Testing	\$40/\$78*
Review OSHA questionnaire for medical clearance	\$35
Physical Exam	\$105
*\$78 fit tecting fee applies to farms with applied gross	rocoints

*\$78 fit testing fee applies to farms with annual gross receipts greater than \$350K or 1,000 or more milking cows

New Policy: NYCAMH must have proof of medical clearance in hand before a worker can be fit tested. **Streamlined Process:** No blood pressure or peak flow readings



Strep Resistant Erwinia amylovora

in New York State – Webinar

Tuesday March 21, 2023 1-2:30pm

Speakers will be Dr. Kerik Cox, along with his students Līga Astra Kalniņa and Isabella Yannuzzi, who have done considerable work studying fire blight and SmR Ea.

Register Now

Strep resistant E. amylovora (SmR Ea) has been found in many parts of New York state in 2022. How worried should growers be who have resistance in their orchards, or in an orchard nearby?

Please join us for a webinar to discuss the types of SmR Ea currently found in New York state, what growers with SmR Ea on their farm should do to mitigate the damage, and what growers who do not currently have SmR Ea on their farm should do to avoid it. There will also be a discussion about the sampling network, including information about submitting samples for testing in 2023.

Agenda

- 12:45-1:00pm DEC Recertification points check-in
- <u>1:00-1:10pm</u> Welcome and introductions
- <u>1:10-1:50pm</u> Status of Streptomycin resistant *Erwinia amylovora* in New York state: what you need to know and what to do about it
- <u>1:50-2:10pm</u> Discussion and Grower Questions
- <u>2:10-2:30pm</u> Sample submission and sampling network in 2023

1 DEC Credit Available in categories 1A, 10, and 22. To receive credits, you must:

1.Send a photocopy of your applicator ID to Janet at jev67@cornell.edu or 585 797-8368

2.Attend the entire webinar

3.Complete the Qualtrics surveys at the beginning and end of the meeting, including entering your name and DEC ID number exactly as it appears on your license.



Please contact Janet van Zoeren with any questions: 585 797 8368 | jev67@cornell.edu

Western NY Fruit Conference Evaluations

This is this last chance to provide valuable feedback for us regarding the Western NY Fruit Conference held February 27-28 at the RIT Inn & Conference Center in Henrietta. For those who attended, we value you input on the quality on the educational programing, the amenities at the venue, and whether or not a 1 ½ day format should be pursued in the future.

In case you did not fill out the evaluation survey at the conference, the link and QR code are here:

https://cornell.ca1.qualtrics.com/jfe/form/SV_2rj1fvvGlz4BK6i

Scan with your phone's camera or QR reader app to take the survey!



Statewide Virtual Apple Conference Evaluations

This is this last chance to provide valuable feedback for us regarding the Statewide Virtual Apple Conference held March 3. For those who attended, we value you input on the quality on the educational programing, the length of the program, and whether or not a program like this is still valuable.

In case you did not fill out the evaluation survey at the conference, the link and QR code are here: <u>https://cornell.ca1.qualtrics.com/jfe/form/SV_3VOcbZthOqpbTdY</u>

Scan with your phone's camera or QR reader app to take the survey!



Mark Your Calendar

Meeting Title	Strep Resistant Erwinia amylovora in New York state
Date	March 21 st
Time	1-2:30 PM
Location	Virtual
Cost	Free
Contact for Info/Registration	Learn more and register at https://lof.cce.cornell.edu/event.php?id=1762 .
Brief Description of Meeting	Dr Kerik Cox and members of his lab group will discuss fire blight resistance in NY.
	DEC credit pending.
Meeting Title	2023 Wayne County - DEC Certified Pesticide Applicator License Exam
Date	March 24
Time	8:30 sign in; 9:00 exam begins
Location	Wayne County Cornell Cooperative Extension
	1581 NY-88
Cost	
Contact for Info/Registration	Place contact luctin Schoff at the Path DEC office (607) 776 2165 to register
Brief Description of Meeting	See more information on our website <u>https://lof.cce.cornell.edu/event.php?id=1758</u>
Meeting Title	2023 Respirator Fit Testing Clinic in Orleans county
Date	April 4th and 5th, 2023
Time	PM on April 4th, AM on April 5th
Location	Orleans county CCE
	12690 NY 31
	Albion NY
Cost	Varies by farm, see flyer on page 6
Contact for Info/Registration	Call 607-547-6023 (Monday-Friday, 7:30 am—4:00 pm) and ask for the Fit Test Clinic scheduler OR E- mail <u>FitTest@bassett.org</u>
Brief Description of Meeting	The New York Center for Agricultural Medicine and Lealth (NYCANAL) and Cornell Cooperative Extension of
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Cornell Cooperative Extension

Lake Ontario Fruit Program 12690 Rt. 31 Albion, NY 14411

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Predicted Green Tip Date for WNY in 2023

Intentional Delay of Dormant Pruning for 'Honeycrisp' & Other Important Biennial Cultivars (Fuji)

Performing Floral Bud Evaluations on Honeycrisp Ahead of Precision Pruning

Make sure you're signed up for the Fruit Facts supplemental!

Spanish translation needs survey, Special Permit Training, and Introducing Mary "Bess" Lewis in the WNY fruit region

Farm Employer Input Needed! NY Farm Labor in Transition Survey

Respirator Fit Testing Clinic—upcoming dates

Strep Resistant Erwinia amylovora in New Your State - Webinar

Mark Your Calendar

Contact Us

Fruit Notes

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

Fruit Specialists



Craig Kahlke | 585-735-5448 | cjk37@cornell.edu Team Leader, Fruit Quality Management

Areas of Interest: Fruit Quality and factors that affect fruit quality before, during, and after storage. Crops: Blueberries, Raspberries / Blackberries, Strawberries, Apples, Apricots, Cherries, Nectarines, Peaches, Pears, Plums



Mario Miranda Sazo I 315-719-1318 I mrm67@cornell.edu Cultural Practices

Crops: Blueberries, Raspberries / Blackberries, Strawberries, Apples, Apricots, Asian Pears, Cherries, Currants, Gooseberries, Nectarines, Peaches, Pears, Plums



Janet van Zoeren I 585-797-8368 I jev67@cornell.edu Integrated Pest Management (IPM)

Areas of Interest: IPM of tree fruit and berry pests, biological control, pollinators. Crops: Blueberries, Raspberries / Blackberries, Strawberries, Apples, Apricots, Asian Pears, Cherries, Currants,