Cornell University
Cooperative Extension

Lake Ontario Fruit Program
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"*Fruit Facts*" – Tuesday, May 9th, 2023

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Coming LOF WNY Petal Fall meeting to be conducted virtually is scheduled for this Friday May 12 at 3pm – Zoom invite will be sent by Craig later!

Current forecast shows minimal fire blight or apple scab risk

Continued cooler nighttime temperatures along with no significant rainfall forecast means the current forecast does not show any predicted fire blight or apple scab infection events. However, do remember that, as temperatures increase late this week, fire blight infection could take place due to the wetting caused by a bloom thinner or other spray application – I would recommend you tank mix Strep in with any spray you put on Thursday Friday or Saturday. And as always we will continue to keep a careful eye on weather forecasts and the NEWA model.

To Do Today

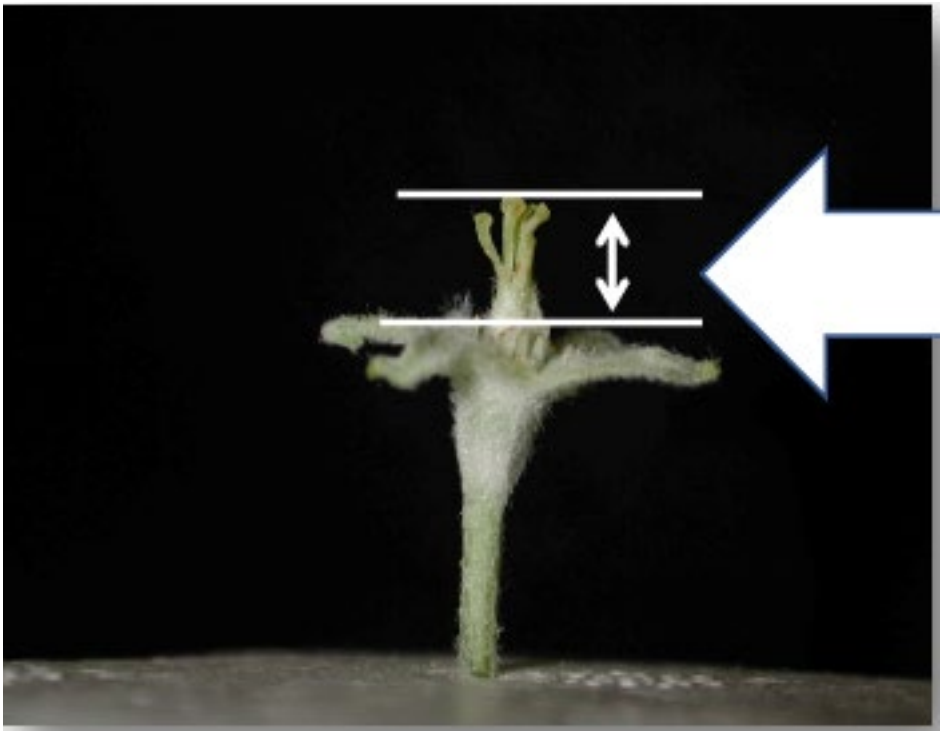
- An **apple scab infection took place** over the weekend. Hopefully most orchards were able to cover up beforehand. If not, and you did not manage to get a kickback material on yesterday, you will want to be extra diligent with your scab sprays later this season, to clean up any inoculum that slipped through over the weekend.
- A **fire blight infection** could be triggered by the wetness inherent in any thinner or fungicide spray application you make on Thursday, Friday or Saturday this week, as temperatures are forecast to increase.

- **You can use the pollen tube growth model (PTGM on NEWA) to time blossom thinning sprays today/tomorrow and the rest of this week:**
  - **Blossom thinning sprays of ATS** should be timed so that enough flowers are fertilized before spraying ATS. This is done by noting the time (day/time) when enough flowers have opened to equal the target number of apples the tree should carry (120-150 apples/tree for a 3ft x 11-12ft planting). Once that number of flowers have opened, growers should begin the model's clock which is available on NEWA. The model will track the progress of the pollen tubes as they grow down the pistil and when enough time has elapsed to fertilize enough flowers to give growers the target number of fruit they want at harvest then a spray of ATS at that moment will prevent other flowers from being fertilized. Timing is essential and the spray must be applied within a few hours of the proper time recommended by the PTGM. We encourage WNY growers to use the PTGM and get their feet wet this 2023 season and try it on the problem varieties in a block or two. After the first spray the model's clock starts again and when enough time has elapsed for new pollen tubes to grow down the pistil then a second spray is applied to prevent any more flowers from becoming fertilized. Usually in NY two sprays are sufficient but with some varieties with substantial lateral bloom on one-year wood a third spray would be required.
  - **Some early inland sites** (blocks located south of 104 in Wayne) achieved the first ~120-150 open flowers/tree of Gala, 80-100 flowers of Honeycrisp, and 60-80 flowers of Fuji this past Saturday or Sunday in inland sites and the pollen tube growth model should use a start time of Saturday or Sunday depending on the variety. Our checking of the model with such a start day show that blocks achieving the target flower number on Saturday should receive the first ATS spray sometime today (Tuesday) in the morning/afternoon, or early tomorrow Wednesday at the

latest.

- **Sites just north of 104** achieved 50-60 flowers/tree on Gala and 10-15 flowers on Honeycrisp yesterday (Monday May 8 by around noon time). Growers in this situation should wait and note the exact moment enough flowers are open before starting the pollen tube growth model clock. We estimate the start time will be sometime on Wednesday.
- **Sites located very close to the lake** in Williamson (at the north end of Townline Rd.), there were almost no flowers open at noon on Monday (0-1 open flowers/tree and 5-15 at the balloon stage with Gala, 0-5 open flowers/tree and 5-10 at the balloon stage with Premier Honeycrisp, and 0-5 open flowers/tree and 5-10 at the balloon stage with regular Honeycrisp). Growers very close to the lake should wait and keep track of the exact moment that enough flowers are open. We estimate this will be Thursday or Friday, thus the pollen tube growth model should start then with a likely spray date of Saturday or Sunday. The exact timing will depend on flower development. For more accurate blossom thinning recommendations for lake sites, please plan to attend the CCE LOF zoom meeting this Friday May 12 at 3pm.

- **A key part of using the PTGM is correctly measuring the length of the style in the flowers**: Please remember that the current formula for the PTGM is very dependent on having an accurate style length, as it significantly changes the model output. Cornell is beta testing a new PTGM which does not use style length this year. We could potentially have a grower beta test available next season.
- **The picture below shows the recommended way to measure the length of the style:** Remove the petals from the flowers but not the sepals and measure from the top of the flattened sepals.



- **Doubts about Promalin use (for typiness) if you are planning to implement a more aggressive ATS program guided by PTGM during bloom on Gala this season:** According to Professor Terence Robinson the use of Promalin with ATS using the PTGM are compatible. The Promalin should be applied before the first ATS spray which will usually be applied after 50% bloom. Remember the first ~120 flowers must open then we have to have enough time lapse for the pollen tube to grow so that the first spray of ATS will normally come after the Promalin spray which should go on about the time we start the PTGM (when the first 120 flowers are open).
- **Phenology Update:** Stages of early king and lateral blossom for important cultivars that should receive blossom thinning sprays guided by the Pollen Tube Growth Model (PTGM) – phenology evaluated on Monday May 8, 2023

Orleans/Niagara Sites	% King Bloom (KB) open and % lateral bloom
Ledge Rock - Medina	Gala (1% KB) Fuji (< 1% KB) Honeycrisp (55% KB) NY-1 (10% KB) NY-2 (48% KB)
Dobbins-Lockport	Honeycrisp (3% KB and 20% lateral bloom) Gala (2% KB and 30% lateral bloom)
Oakes-Rowley	Honeycrisp (44% KB and 5% lateral bloom) Gala (6% KB)
Lamont - Stillwater	Gala (19% KB and 1% lateral bloom) Honeycrisp (15% KB and < 1% lateral bloom)
Nesbitt - Lakeshore	Gala (8% KB) Honeycrisp (5% KB)
Excelsior Farms - Kent	Firestorm Honeycrisp (5% KB) Crimson Gala (15% KB) Aztec Fuji (15% KB) Daybreak Fuji (10% KB) Brookfield Gala (5% KB)
Two of Clubs Orchard – Niagara County	Honeycrisp (50% KB) Gala (45% KB) Aztec Fuji (45% KB)

Wayne County Sites	% King Bloom (KB) open and % lateral bloom
VanDeWalle – Brick Church Rd.	Gala (> 60% KB) Honeycrisp (> 40% KB) Fuji (> 35-40% KB)
Cherry Lawn Farm – storage facility	Gala (55-65% KB) Honeycrisp (30-35% KB)
Morgan Fruit Farms – Warner Rd in Marion	Gala and Fuji (both > 55-65% KB)
DeMarree Fruit Farms – main farm	Gala (< 1% KB and 5-10% lateral bloom) Premier Honeycrisp (< 5% KB and 5-10% lateral bloom) Regular Honeycrisp (< 5% KB and 5-10% lateral bloom)

- **The importance of having nutritionally strong flowers for a good crop:** A few years ago I borrowed a good pollination and fruit set book from Dr. Susan Brown. There her book included a chart showing the relationship of timely nutritional applications in promoting the growth of strong flowers, thereby increasing the number of days of receptivity in stigmas and the longevity of the ovules. Strong flowers have four to five days longer viability than do normal flowers, with weaker flowers demonstrating even less capability. Both strong and normal flowers have a pollen tube growth period of seven days, but the ovules in strong flowers can have up to thirteen days longevity versus only nine days longevity in normal flowers. Similarly, the period of receptivity of the stigma is increased from five to nine days in nutritionally strong flowers.

- Consider fungicide choices carefully once **bee hives** are in the orchard. For a reminder of which fungicides are most bee-safe, and what products are worse when used together, view our "Bloom Pesticides – Relative Toxicity to Pollinators" cheat sheet at https://rvpadmin.cce.cornell.edu/uploads/doc_870.pdf.

Stone Fruits:

- **Brown Rot** management involves rotating fungicides from pre-bloom through petal fall. There are many labeled products available (see Recommends), including Rovral 4 flowable (which may provide 24hr "kickback" activity) and chlorothalonil/Bravo (avoid when bees are foraging, if possible).
- **Plum curculio** is active when temperatures are above 60F. Beginning Wednesday-Friday, as stone fruits reach shuck fall AND once the bees have been removed from the orchard block, consider applying Assail or Avaunt (or see the Recommends for other options).

On The Horizon

First root pruning practices were conducted in Alton, Wayne County yesterday: I had the opportunity to see for the first time the use of a modern root pruner (built by Munckhof/distributed by Lagasse, Lyons) on a mature Wild Twist/G.41 block yesterday. Several more apple cultivars were root pruned at the farm. The root pruner has a strong blade that made an **angled cut 20 inches deep** approximately **18-19 inches from the trunk** (only one side of the row was root pruned). In recent years, root pruning has been increasing in popularity in WNY. Please keep in mind that root pruning at bloom to 10 days after petal fall is the most effective in controlling excessive shoot growth. The timing of root pruning is not as critical as the timing of the first Apogee spray recommended at pink or at petal fall for a highly vigorous cultivar. Root pruning can be applied later up to 10 days after petal fall period. One of the main side effects of root pruning is the reduction of fruit size. Fruit size reduction can be detrimental if severe root pruning is followed by a severe drought in orchards without trickle irrigation. Severe root pruning can also stress the trees and be conducive to black stem borer infestation. If planning to root prune after an Apogee spray at pink this season, root prune only one side of the row and not closer than 18-20 inches from the trunk.


Oriental Fruit Moth flight began this week throughout the Lake Ontario region. We will now begin to tally Degree Day accumulation, to time insecticide applications in blocks that reach threshold. For now, we are at 0 degree days (biofix) across the region, and fairly cool temperatures will slow egg development (accumulating 50-70DD out of 350 to time larvicide application). Note that an insecticide is warranted for OFM if you saw damage last year, and if trap catch numbers exceed 10 per trap per week. Also note that last year we were trapping upwards of 60 per trap per week in some locations, and yet by far the majority of "worms" in the apples at the end of season were codling moth rather than OFM. All that to say, it may be more important, for most farms, to time insecticide applications based on CM phenology. IF you have a suspicion of high OFM worms in apples last year, and would like me to visit this fall to look at some fruit, give me a call.

Good to Know!

How to successfully implement the use of the pollen tube growth model and possibilities of beta testing for WNY growers in 2024 (by Brent Arnoldussen, Post Doctoral Research Associate working with Dr. Greg Peck, Cornell University): 'I would recommend WNY growers continue to use the model as it is with all of the previous recommendations from Terence and Greg. However, I will add that our new work seems to further back up Terence's recommendations of using **60% model output to time applications.** The old models are very dependent on style length so growers should still be measuring these. I was also seeing a significant regional difference in style length in the same cultivar.

We are doing beta testing of several new models in 4 sites in New York, as well as North Carolina and Washington. The new models will not use style length and will give growers a range they can use to fit their application times into. The preliminary results seem promising, and I think we will have some models available for a widespread grower/collaborator beta test next season.

Is there a fire blight infection risk if temperature reach above 60 during the day, but drop to the 40s or 50s at night? If you have been watching the NEWA fire blight model over the weekend, and wondering if there was an infection event given the warm temperatures followed by rain events, you may have noticed that despite temperatures over 60F (threshold for Erwinia infection) AND rain event, AND open blossoms, the NEWA output listed infection potential as either "low" or "moderate" (see image below).

Date (2023)	Cougar Blight V8 Daily TRV Risk Levels: Marginal / High / Extreme	Infection Potential EIP value Risk Levels: Low / Moderate / High / Infection
May 5	0	0
May 6	5	0
May 7	24	10
May 8 Forecast	25	7
May 9 Forecast	25	3
May 10 Forecast	20	0
May 11 Forecast	2	0
May 12 Forecast	2	0

Here is what Dr. Kerik Cox had to say about the fire blight risk over the weekend:

> A cold nighttime temp can kill an EIP (estimated *Erwinia amylovora* infection potential) to almost nothing. The Maryblight model (at right above) takes this into account, but Cougarblight (at left above) doesn't. The models take hourly heat accumulations rather than average daily temp. I'd focus toward the end of the week when it approaches 80.

In addition, note that the colors in the Cougarblight output do not necessarily correspond to the numeric value (it seems that the numeric value takes into account the cool night temperatures, but the color perhaps does not), so be sure to look at both the number and the color before deciding what the risk potential is on your farm.

If you have any additional questions about understanding the "new" NEWA outputs or how to determine when and if to spray for fire blight, Kerik's lab posted about that this week on their blog at https://blogs.cornell.edu/coxlab/2023/05/03/forecasting-fire-blight-infection-events-2/, or you can always give me a call.