



“Fruit Facts” – Tuesday, April 30^h, 2024
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Pink Meeting recording

Click to access recording: <https://youtu.be/JGI7n69-JA0?si=nXTtGikVaSqLfgyk>.

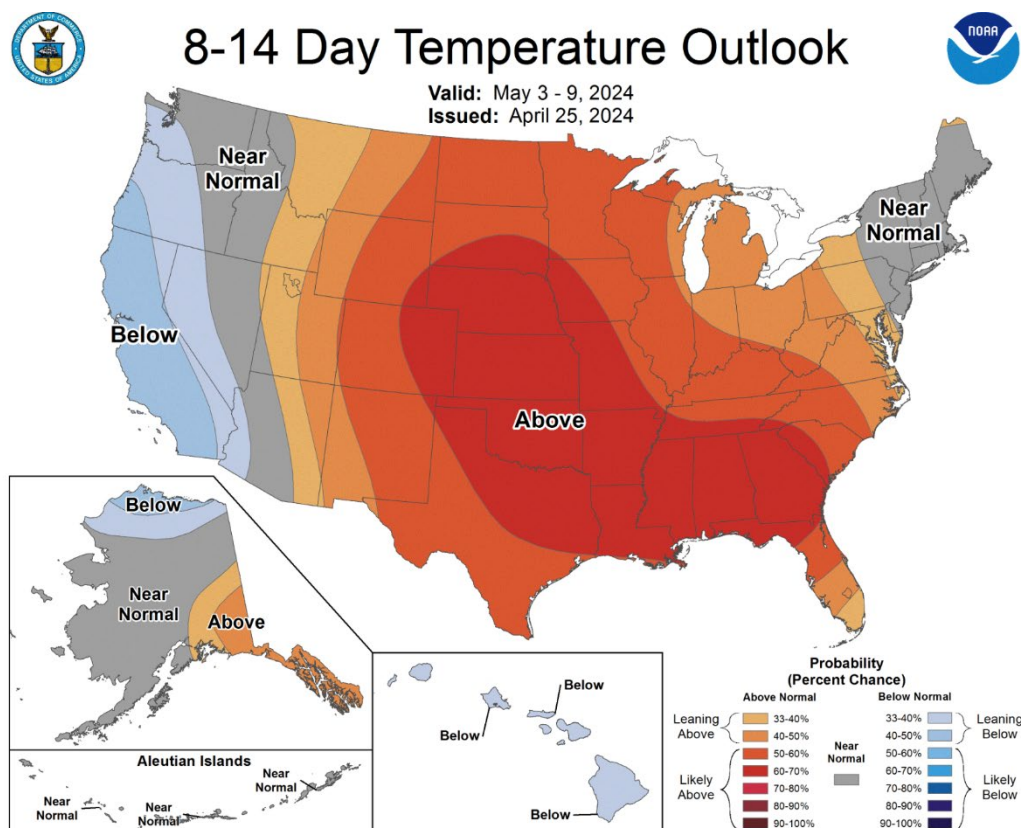
Cornell Statewide Frost Protection Webinar recordings

The recordings of the Cornell Statewide Frost Protection Webinar held last Friday are available here:
<https://youtu.be/TIBepfb98ws>

Weather Forecast

See below the graphic that was provided last Thursday night by Cornell climatologist Jessica Spaccio from NOAA, Northeast Regional Climate Center at Cornell University.

NOAA’s Climate Prediction Center (CPC) 8-14 day outlook for May 3-9 slightly favors above-normal temperatures for central to western New York, shown in orange on the map. The rest of the state, shaded in grey, is favored to have near-normal temperatures (review graphic).



To Do Today

- **We have still a good potential crop out there after the very cold two nights last week.** Last Friday in the afternoon I saw significant damage in a Pink Lady site in Orleans and got panic. Yesterday I was able to visit more inland and lake sites in Wayne and the damage is not as bad as I thought last Friday. Early cultivars that were more advanced and were located at lower spots were definitely more affected by the two successive very cold nights. In the worst-case scenarios, I saw Fuji more affected than Gala. And Honeycrisp had more damage than Gala. I also saw some damage at the top of drumlins in a few early processing cultivars. Plenty of Idared kings and a few laterals were at bloom in inland sites yesterday. Some Idared blocks were also affected by the cold nights. In the meantime, **growers should assess the damage specially in the lowest spots this week and produce maps of none, low, medium, and high level of damage** in preparation for chemical thinning later. Check your blocks!.
- **Early shoot renewal and full rejuvenation of pruning stubs** can be seen in the below two pics taken yesterday.



- **Nice take of a scion starting to push on a B.9 rootstock** in a large on-farm nursery located in Sodus Center, Wayne (pictures taken yesterday).



○ **Promalin: What to do when freeze events occur from tight cluster to pink**

Apples at tight cluster to early pink are more tolerant to cold temperatures than fully open flowers. Nonetheless, if the temperatures do get cold enough (27/28F), injury to flower reproductive parts can occur. I often get asked this time of year “will Promalin help set fruit after a damaging frost event at tight cluster to pink”. The short answer is yes, but there is a caveat. Don't run out the next day and spray Promalin as if the trees were in full bloom. Be patient and follow the series of steps below.

Guidance on Promalin use when damaging frost occurs before the bloom stage:

- **Do not apply Promalin the next day after a frost event during tight cluster and early pink growth stages:** You will be underwhelmed by the results if you do. If trees are at full pink (all five unfurled flowers fully extended) then wait until the first few king flowers open
- **Assess flower buds for cold injury at tight cluster to pink:** Do this by dissecting flowers that have not yet fully opened to see if the reproductive flower parts are still alive. If you see brown discoloration inside the developing flower, then it means the female part of the flower (pistol) is dead and no pollination or fertilization will occur. The tree will subsequently shed those flowers. In many cases the flowers will open and look fine (no injury to the petals), but that can be deceiving. Make sure to inspect the flower reproductive parts closely as previously mentioned. **Note:** if the freeze event is hard enough that the vegetative receptacle tissue at the base of the flower gets damaged or frozen, then it's game over. Promalin will do no good. Its utility is limited to cases where the flowers reproductive organs are no longer functional but the receptacle remains unharmed.
- **Determine the injury threshold:** It's up to you to determine if there are enough damaged flowers on the trees that may result in reduced fruit set and crop loss. Remember, you don't need every flower to set. In most cases, the goal is for only one of the five flowers on a spur to develop in to a fruit. It's also important to have an adequate number of non-fruiting spurs for next year's crop. Don't panic if there is modest flower injury. Consider it your first thinning application...
- **Decide:** If your damage assessment suggests that crop loss is likely then you can make the choice to spray Promalin on the trees to increase fruit set. Apply one **pint of Promalin/Acre**, timing the application to first flower/early bloom stage . Applications made later than early flowering have been shown to be ineffective in situations where flower injury occurred from freeze events at tight cluster through pink. Use sufficient water volume ~100 gal/Acre to ensure good coverage and apply under slow drying conditions if at all possible.

It's important to understand how Promalin works and what its limitations are. While I will not go in to all the details in this article, I want to underscore a few key points

- 1) **Promalin IS NOT an anti-freeze type product.** It will not lower the freezing point of the plant tissue if applied ahead of a frost event.
- 2) **Promalin WILL NOT revive, resuscitate or repair plant/flower tissue that is damaged by freezing temperatures.**
- 3) **Promalin is basically equivalent to hormone replacement therapy in humans.** In the normal pollination process, fertilized ovules begin to develop in to seeds that produce hormones including cytokinins and gibberellins. These hormonal signals tell the tree there is viable seed in the apple. The seed is essentially the offspring, and the tree will continue to nourish the developing seed with carbohydrates and nutrients. However, if fertilization does not happen due to reproductive flower injury or poor pollination weather, then no viable seed will develop. In that scenario, the tree is much more likely to shed the fruit and put it's energy in to those apples that have the potential to produce progeny. That's where Promalin comes in. Promalin applied to sterile flowers provides the hormonal signal that would normally come from the developing seed. That's why it's important to synchronize the application of Promalin with the trees natural phenology - slightly ahead of or during the early pollination window. Trees don't receive hormonal signals from developing seeds from tight cluster through pink, so why apply Promalin then? The cytokinin and gibberellins will be long gone by the time bloom comes around. Coincide the application to the same stage the tree is expecting to receive those signals instead. The fruit that develops after Promalin application will have low seed count or no seeds at all, but it will develop to normal size as research studies have shown.

- **This is the week to impose/finish the last touches of precision pruning on Honeycrisp at the early pink stage.**
 - **The first step in managing crop load is to establish a target of final fruit number for Honeycrisp and Gala**
 - **Honeycrisp example:** $1,200 \text{ bu/acre} \times 80 \text{ count} / 1,320 \text{ trees/acre} = 73 \text{ fruits/tree}$
 - **Gala example:** $1,500 \text{ bu/acre} \times 100 \text{ count} / 1,320 \text{ trees/acre} = 114 \text{ fruits/tree}$
 - **The second step (important this week at early pink for Honeycrisp) is adjust bud load through precision pruning. And also ask your Jamaican and Spanish pruning crews to watch the CCE LOF YouTube videos in English and Spanish)**
 - **Honeycrisp example:**
 - Target = $73 \text{ fruits/tree} \times 2 = 146 \text{ buds per tree}$
 - Don't leave more than 200 flower clusters on Honeycrisp!
 - **Gala example:**
 - Target = $114 \text{ fruits/tree} \times 1.5 = 171 \text{ buds per tree}$
 - Don't leave more than 250 flower clusters on Gala!
- **Ongoing apple scab infection event with all these rains!** Hopefully you were able to find a break in the rain and cover up over the weekend or yesterday. Based on current forecast the infection will run through tomorrow, so look for a break in the rain late this week to apply a product with kickback (remember to rotate FRAC group SI and SDHI fungicides to avoid resistance).
- **Fire blight infection currently is low for the week,** but bound to pick up soon as blooms open and temperatures increase. Be ready!

Stone Fruits:

- The **brown Rot** management period in stone fruit continues. Although the optimal range for pathogen development is above 60F, blossom infection can occur at any temperature above 32F. If you have a history of blossom blight keep stone fruit trees covered from pre-bloom through petal fall. Don't forget to rotate fungicides - 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).
- Do you have monitoring traps out for oriental fruit worm? We have caught 3 OFM at a single location in a peach block so far this spring. The insecticide management window will occur when these moths have mated, laid eggs, and to target the newly hatched caterpillars.

Berries:

- While we don't have a freeze on the horizon, now is a good time to confirm that your irrigation, floating row cover, or other frost protection method of choice is ready to go if the need arises.
- In areas where **strawberries** have a history of **red stele root rot**, apply Prophyt (potassium phosphite) to the foliage to protect plants from infection. This product can be applied to newly-planted strawberries after their leaf growth begins. For established plantings, Phostrol or Rampart (both have mono and di-potassium salts of phosphorous acid as the active ingredient), Ridomil Gold (mefenoxam), or Bio-Tam 2.0 (Trichoderma asperellum str ICC 012, Trichoderma gamsii str ICC 080) can be applied to foliage once the new growth has begun, while the soil is still wet and cool.
- In **blueberries**, consider ordering **cranberry fruitworm and/or cherry fruitworm** traps to monitor this migratory moth whose larvae cause webby berries filled with crumbly frass. These traps will need to be hung during bloom, to protect fruit in early petal fall.

On the Horizon

- **Leave checks/controls/untreated panel sections if you will be using frost protection products this season:** If you are going to test products, you need to leave unsprayed controls within each block that you are testing. You should try to avoid using separate complete blocks as contrasts between control and treatment. If you don't leave controls, you cannot determine potential effectiveness. Dr. Jason Londo is happy to coordinate with growers to evaluate product effectiveness this season. Please let us know if you are planning to test the use of frost protection products.
- **Site location matters:** New stone and pome fruit plantings will be more prone to future frost events if located in low-lying areas where cold air settles, and in areas where wind and air movement are blocked by obstructions such as trees, hills, fences, and or buildings.
- 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.
- The mild, warm weather this winter and spring has been great for insects. Plan to **scout strawberries for tarnished plant bug**, especially after mowing grass adjacent to the strawberry field. **Hang cherry and cranberry fruitworm pheromone traps in blooming blueberries** and keep them up through petal fall, placing traps at least 50 feet apart.

Good to Know

Did you know that almost all apple growing areas around the country, generally and in NY specifically, have more apple growers in 2022 than they had in 2017?

- There are 12,000 more acres of apples in NY in 2022 than we had in 2017. That is an increase of about 25%. One third of that was in Wayne County. Wayne County is still the number three county in the US in number of acres of apples and has 44% of all the apple acreage in NYS.
- In NYS, 10% of that apple acreage in the ground in 2022 was non-bearing.
- The acres of irrigated orchards in NYS have increased by 50%.

Berry cold hardiness reminders

Strawberry buds that are nestled in the crown are cold hardy to 10°F. Once they emerge and are tightly closed, they are resistant down to 22°F. Once blossoms open, they are hardy to 30°F.

Blueberry buds that are in tight clusters are cold hardy to 15-20°F. Once separate flowers are visible, they are hardy to 22-25°F. Once the blossoms open, they are hardy to 27°F.

Resources and further reading

Frost Protection | Tips and Techniques | Kathy Demchak, Penn State University <https://bpb-us-e1.wpmucdn.com/blogs.cornell.edu/dist/0/7265/files/2017/01/frost-protection-tips-techniques-1qelzi6.pdf>

Monitoring for Blueberry Fruitworms | South Central New York Agriculture Team | Molly Shaw, Cornell Cooperative Extension

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 2024. 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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