



Healthy Fruit, Vol. 31, No. 11, June 27, 2023

Prepared by the University of Massachusetts Amherst Fruit Team

Jon Clements, Editor

Current degree day accumulations

| | |
|---|----------------|
| UMass Cold Spring Orchard, Belchertown, MA (NEWA, since January 1, 2023) | 25-June (2022) |
| Base 43 BE | 1372 (1438) |
| Base 50 BE | 832 (876) |

Upcoming meetings

July 12, Wednesday – Annual Summer Meeting of the Massachusetts Fruit Growers’ Association, Honey Pot Hill Orchards, 16 Boon Road, Stow, MA. 10 AM to 3 PM. Information and to register for FREE lunch [here...](#)

The way I see it

Jon Clements

Wake me up when September ends. Yea, that is how I feel about this growing season so far. First the peach crop loss in February. Then the apple freeze “event” in May which we are still trying to figure out the overall impact, but has certainly made life more difficult. (And reduced the apple crop, but by how much? Now pretty widespread fire blight. What to do, what to do? Hopefully Dan Cooley will shed some light on it in [DISEASES](#). I think you all can relate.

That being said, we are having a PARTY (aka Summer Meeting of the Massachusetts Fruit Growers' Association) on July 12 at Honey Pot Hill Orchards in Stow, MA. 10 AM to 3 PM. Please fill out [this short form](#) – with a few additional questions – here, whether you plan on attending or not. Thanks to SPONSORS – including OESCO, NUTRIEN, HELENA, VALENT, SSR EQUIPMENT, VESTARON, BROOKDALE FARM SUPPLY, and FARM CREDIT EAST – the meeting and lunch are free for MFGA members (\$20 at the door for non-members), but please do fill out the [form](#) so we know how many are coming. Thanks to Andrew and Chelcie Martin at Honey Pot Hill Orchard for hosting us.

Entomology

Jaime Piñero, Ajay Giri, Heriberto Godoy-Hernandez, Mateo Rull-Garza, Matthew Bley

Weekly report of insect pest captures in monitoring traps at the UMass Cold Spring Orchard (Belchertown, MA)

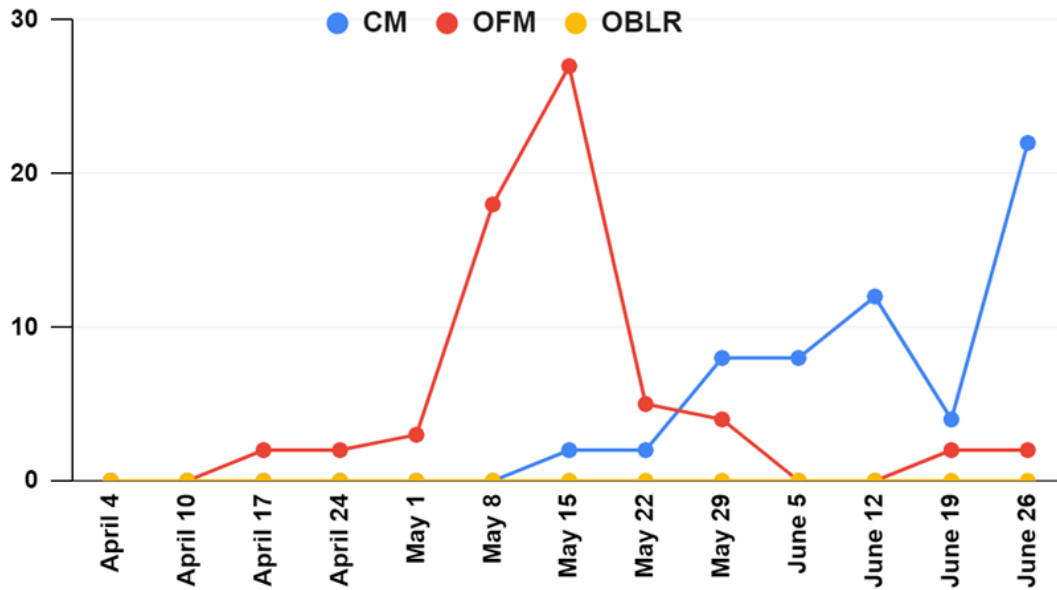
Trap-capture data at the UMass CSO.

Period: June 21 - 27

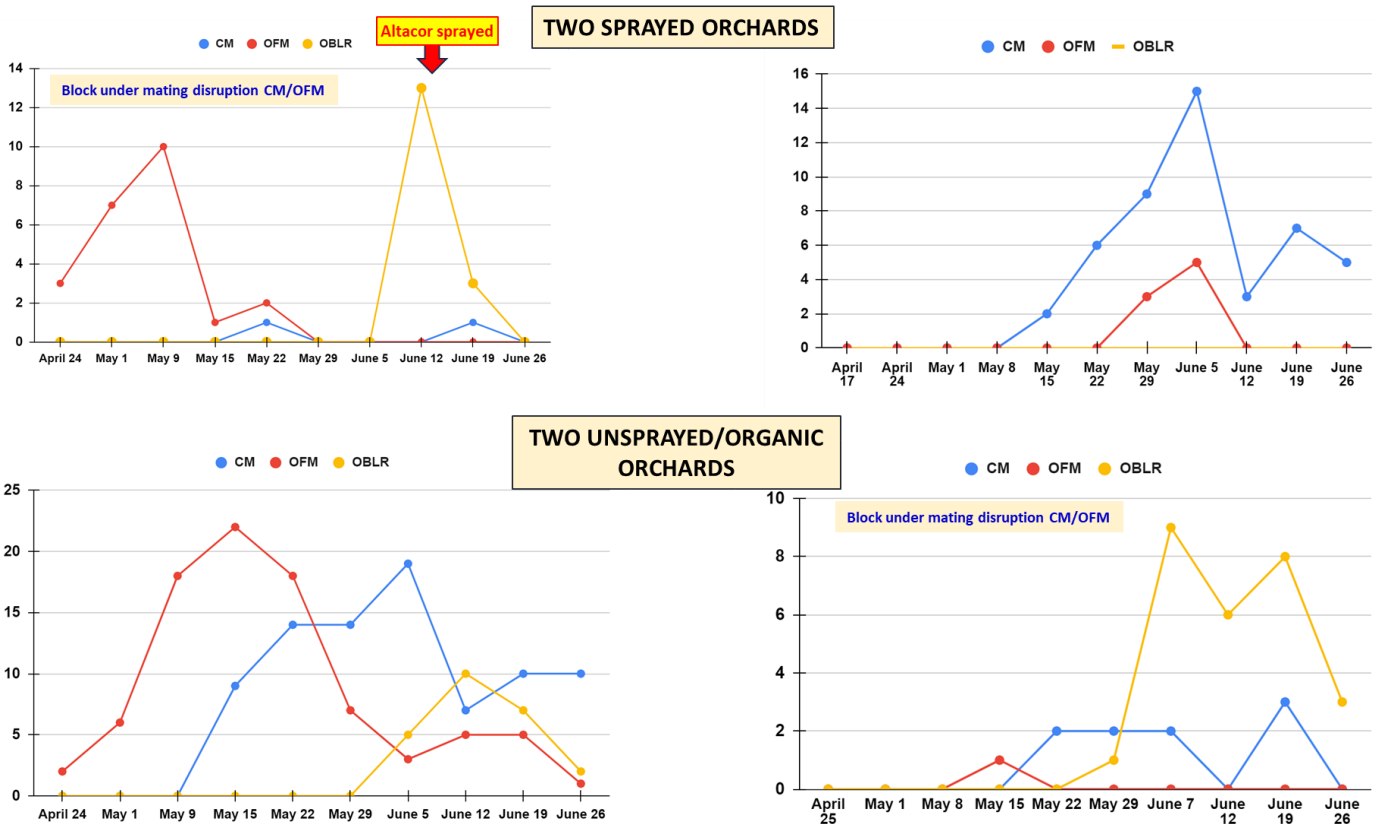
| Insect | Average captures/trap | Notes |
|--------------------------|-----------------------|-------------------------------|
| Obliquebanded leafroller | 2 | 1 Pheromone-baited delta trap |
| Codling moth | 22 | 1 Pheromone-baited delta trap |
| Oriental fruit moth | 0 | 1 Pheromone-baited delta trap |

Codling moth (CM), Oriental fruit moth (OFM), obliquebanded leafrollers (OBLR). In most locations, CM populations have declined substantially. However, a couple of orchards continue to experience high CM activity. One example of a location where CM numbers increased substantially over the past week is CSO. An insecticide spray has been recommended.

Weekly moth captures at CSO



At this moment, OFM and OBLR activity is very low in almost every monitored orchard, as shown in the charts below.

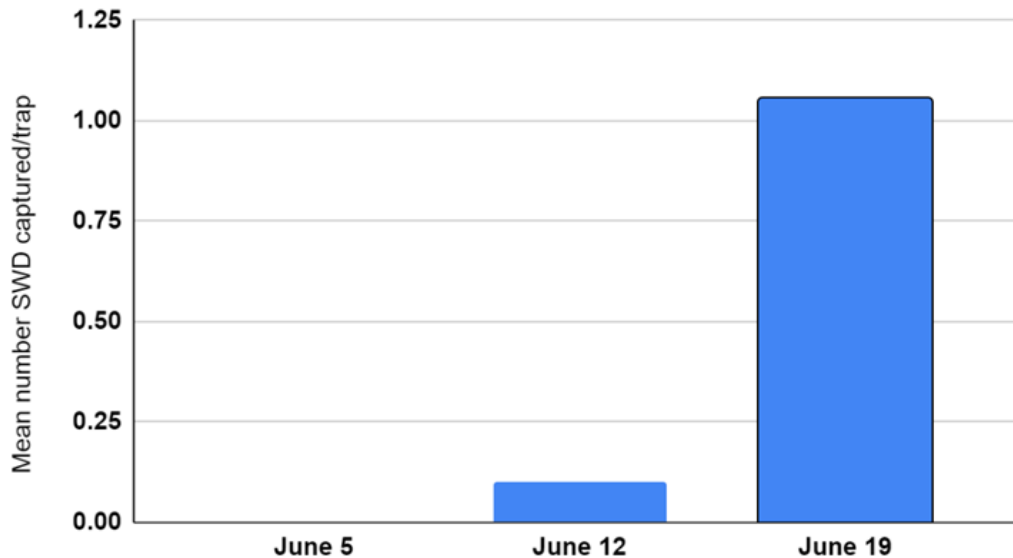


Spotted-wing drosophila (SWD). We are monitoring SWD at 7 MA locations. At each location we have two traps, one is baited with the commercially available Scentry lure, and the other trap is baited with 7-day old, diluted Concord grape juice (DGJ) with 2% table salt added. DGJ has shown to be a very attractive and inexpensive bait to SWD, particularly females.

The first SWD of the season was recorded on June 11th, about two weeks late when compared to 2022. One Scentry lure-baited trap caught 1 male SWD and 253 non-target insects whereas 1 DGJ-baited trap captured 1 male SWD and 29 nontargets. So, traps baited with DGJ continue to show reduced kill of nontargets, thereby facilitating identification of SWD.

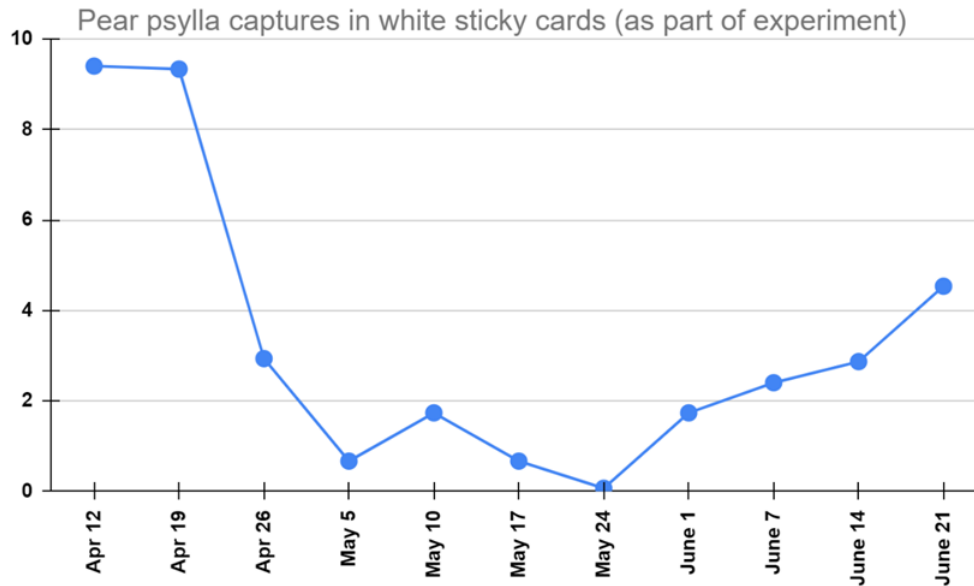
By June 19th, SWD captures reached an average of 1 per trap. We expect SWD numbers to steadily increase, but we don't expect a sudden increase for the next couple of weeks.

SWD captures (males and females combined) across 7 locations



Pear psylla. High numbers of summer-generation pear psylla adults have been observed for the past two weeks in a couple of orchards. For example, in one of the orchards with very high numbers the average number of pear psylla captured on a per trap basis was 60. The grower was recommended to spray.

In a third pear block, psylla numbers are relatively lower (see chart below) than in the first two locations.



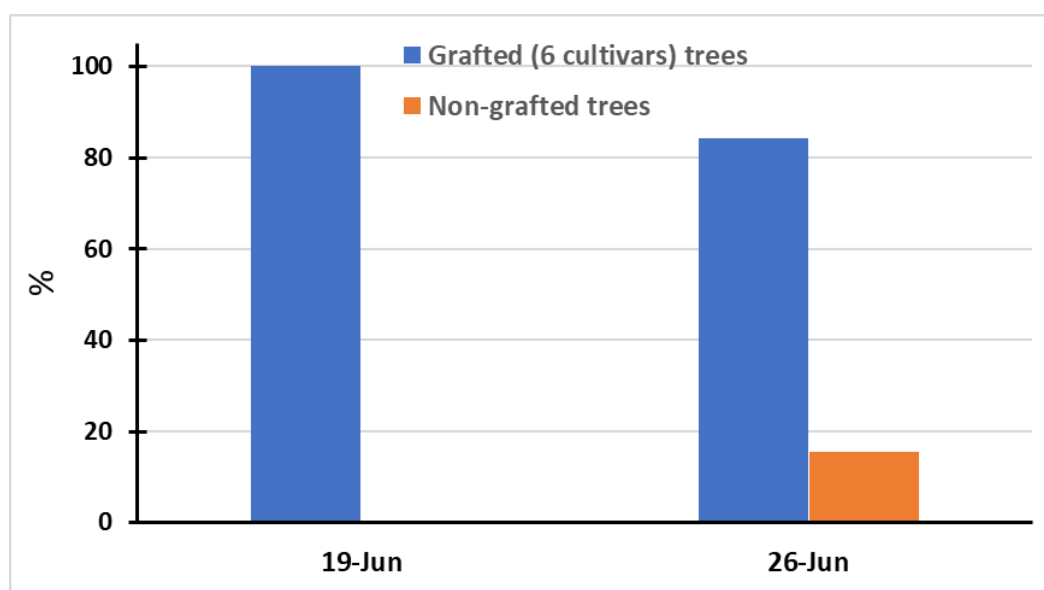
Here are additional suggestions for pear psylla monitoring and management throughout the summer:

Monitoring. Growers should monitor for the presence of pear psylla using their most sensitive pear variety (e.g., Bartlett). For the summer generations again examine at least 10 leaves (recently expanded shoot leaves) per tree on a minimum of five trees per block. The action threshold now is 1.5 nymphs per leaf. When the psylla population is primarily in the adult stage, examine the leaves for the presence of adult activity and egg laying.

Cultural management. Several cultural control practices will reduce psylla populations and dependence on insecticidal control. First minimize heavy pruning, which encourages the proliferation of terminal shoot growth. An overabundance of terminals provides more feeding sites for the psylla. Second, pear trees should receive the minimum amount of nitrogen fertilization necessary for proper tree and fruit growth. Over fertilization can cause extended terminal growth and delay hardening off, allowing optimal feeding conditions for the psylla. Third, and most important, is to remove water sprouts during late June and early July. Because water sprouts provide one of the only sources of succulent leaves at this time of the year, this technique can eliminate a large portion of the psylla population.

Chemical management. A major period to control psylla is the second generation of nymphs begins hatching about mid-June. A second application should be repeated within 10 to 12 days of the first to control additional nymphs hatching from eggs. If the population warrants additional applications, these can be made against the third generation of nymphs, which usually begin hatching around mid- to late July. Since the second and third generations tend to overlap during the season, close attention should be given to determining which nymphal stages are present, since insecticides are most effective when directed against the early instars.

Apple maggot fly. We are monitoring AMF in 10 orchards in MA, as part of the ‘grafting project’. The first AMF was captured on June 19th at CSO. What is interesting to report is that for the June 19th captures, each of the 5 AMF that were recorded was captured on grafted trees, and zero on non-grafted trees. For the June 26th date, the unbaited red sticky spheres captured 83 AMF. Of those, 84.3% were captured on grafted trees and 15.7% were recorded on adjacent trees that were not grafted. These findings support our previous observations (2021, 2022) indicating that multi-cultivar grafted trees provide a more effective way to monitor AMF.



Pathology

Dan Cooley and Jon Clements

Fire blight. According to Jon, everyone has fire blight. I hope that’s an exaggeration. But there’s a lot more fire blight around than I’d expect to see given the weather during bloom. More on that later, but first, a few recommendations on dealing with strikes now.

The first big question is cut or let it ride? The clear answer in some recent research from a multi-state project looking at fire blight is “Cut!” Cut as far back as you can, but a standard recommendation is 12 to 18 inches from visible symptoms, into 2-year-old or older wood. Studies in the multi-state projects show that removing infected shoots will reduce the number of new infections. [Click here for a webinar on the pruning research results so far given by Tianna DuPont from Washington State.](#)

If there are a lot of strikes showing up, then it’s probably worth using the highest label rate of prohexadione-Ca (Apogee or Kudos). Give it 5 days to shut down growth, and then go in and prune.

Actigard and Regalia stimulate plant resistance. Using them alone, or combining with prohexadione has also been successful in slowing shoot blight. Whether the added expense is worth it is still a question.

If there's oozing on the infected shoots, a liquid copper (such as Badge SC, Cueva, or Mastercop) could be applied before pruning, and allowed to dry. This should reduce bacteria on the surface of shoots. It can also russet fruit. Use appropriate PPE if going in before the REI.

Should you get rid of the pruned shoots or can you leave it on the orchard floor? There doesn't appear to be a problem with leaving the prunings. It may be better, in fact, to leave them to dry before removing them.

What about sterilizing pruning tools? It looks like in addition to being a major pain to do, it doesn't make a difference in spreading infections.

Finally, don't use streptomycin or other antibiotics on shoot blight. They won't be any more effective than pruning and the other practices listed. But using strep and other antibiotics in summer is the quickest way to develop resistant fire blight in your orchard.

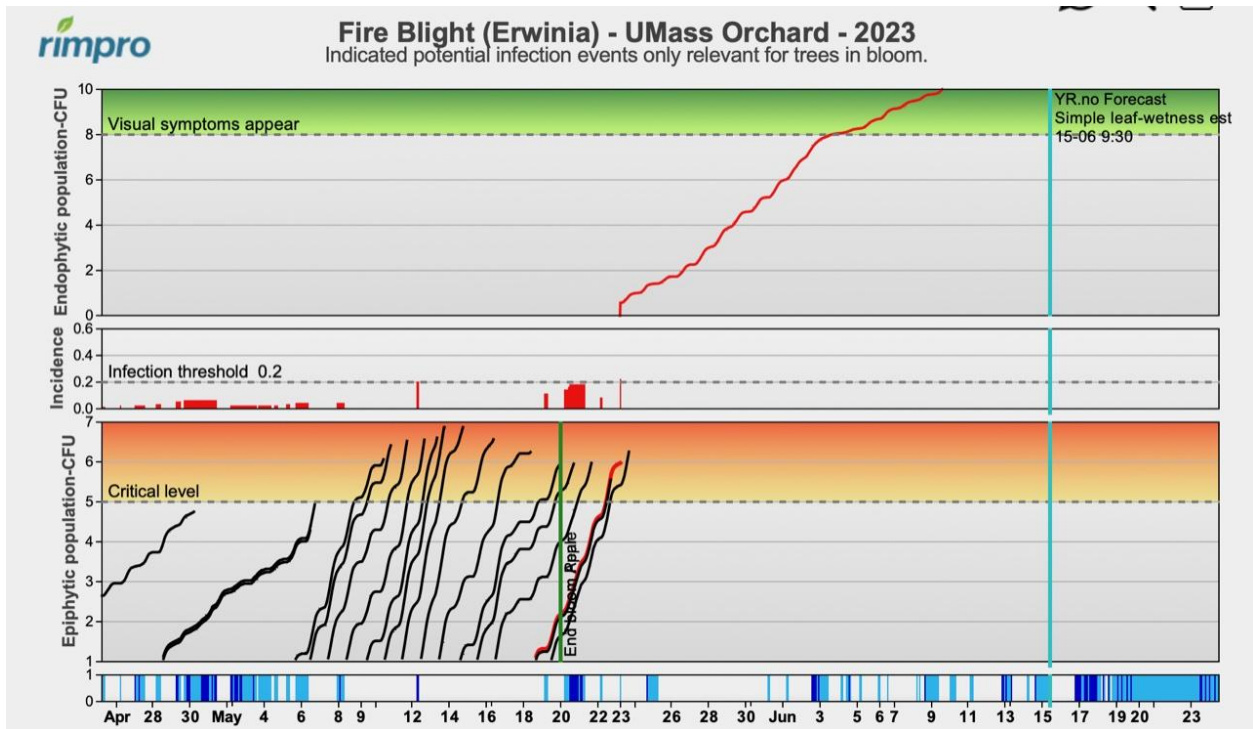
Frost and fire blight. Now, a word or two about what happened to get us into this fire blight situation. Jon noted in a special fire blight alert in Healthy Fruit on May 12 that thanks to a shower, all conditions were met for an infection at Belchertown, according to NEWA. It was late bloom on most varieties. A quick streptomycin should've taken care of any problem, but perhaps some blossom infections started then.

Another possibility is the frost that hit a few days later. NEWA continued to show high to moderate bacteria populations into May 18, the night the frost hit. The cold weather that followed, and the end of bloom largely ended fire blight concerns, and the models didn't indicate any problems. But [Dave Rosenberger, in his blog](#), pointed out a couple of situations where he'd seen frost kick off fire blight outbreaks in the past. Basically, frost damages tissue, providing micro-openings that allow bacteria to enter tissue. In fact, as tissue warms any surface moisture, with any bacteria, get sucked into the tissue.

I didn't think much more about it until a couple of weeks later, when Jon and I were looking at trees in one of his blocks, showing some students frost and other problems. Jon saw what looked like a fire blight strike. A little more looking, and we saw another. From those strikes, on June 3, the problem slowly continued to get worse.

Thinking about Dave's frost and fire blight suggestion, Jon reset the 'end of bloom' in RIMpro from May 16 to May 20, to see what would happen. RIMpro, unlike NEWA, hadn't indicated any infection on May 12. But it did when the petal fall date was moved. All the lines and panels in the RIMpro fire blight screen aren't user friendly. Once translated, it shows one fire blight infection happened in Belchertown, and that it happened on May 18, and that the first symptoms from that infection should be seen on June 3. That fits the frost theory.

Or maybe the fire blight we're seeing now comes from a combination of late bloom infections around May 12, or very late bloom around May 18. Or maybe it's all three, frost and some very late blossom blight. While that's interesting, at this point the problem is not so much when did it happen, as what to do about it!



Horticulture

Jon Clements

Hand thinning should be ongoing, I believe there is more out there to hand thin than we would have guessed. Most everyone backed off on thinning sprays after the heat. Of course most of the apples are in the tops of the trees where most attention is needed now. (Anyone got a platform I could borrow?) For starters, I hand thin such that no apples are touching each other. Given the crop load is typically light in the tree bottoms where a freeze occurred in May, this might be a good strategy for the tops of the trees to keep overall crop load up?



'Modi' apple tree (because the red apples are easy to see) bottoms vs. tops after May 18 freeze event. No hand thinning needed in bottoms, platform needed for tops!



Two apples on left are touching, bigger apples are not (quite) touching



Adequately hand thinned on tree with light crop in bottom? Normally, I would have left just one apple...but this year I am leaving two

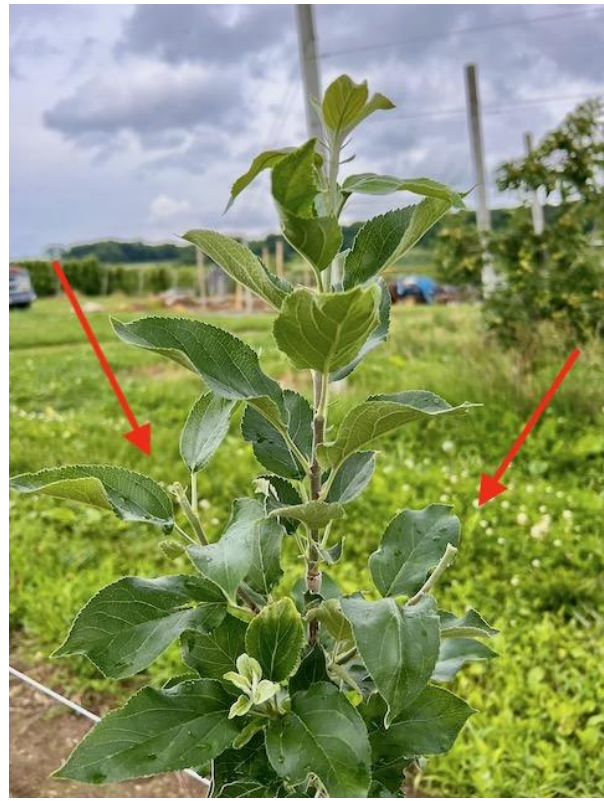
Cornell is recommending collecting **leaf samples** for nutrient analysis from Honeycrisp a month before the typical timing of late July to early August. That means almost anytime now. I have been using the PT2 test from Waypoint Analytical (<https://www.waypointanalytical.com/PlantTissues>) as the UMass Soil and Plant Nutrient Testing service is no longer doing leaf analysis. It takes a little time to get set up into the Waypoint system, but once you do it's pretty straight-forward. I send my samples to the Pennsylvania location.



'Tipping' (vs. stripping, or leaving alone) **young shoot growth on the leaders of young trees serves two purposes:** keeping the leader growing strong and being a true leader; and when done now – similar to hedging bearing orchards – can stimulate the formation of fruit buds and earlier cropping (assuming the trees have begun to fill their space). I'd do it when it is dry and avoid next to fire blight outbreaks?



Before “tipping”



After “tipping”

I have seen it before and I am seeing it now. Trees planted in pots in growing mix (with mycorrhizae) look SO MUCH better than the same trees planted out in the field – replant site, poor site prep (no cover crop), compaction, lack of immediate irrigation, etc. Why do we do this? Points to the importance of site prep including avoiding compaction, cover cropping for several years, adding organic matter where feasible. Is the growing mix considered “healthy” soil because it sure seems a lot healthier than the soil where these trees (Porters Perfection on Geneva 213 rootstock) are planted. Arghhh...



Apple tree on left growing in pot (it's down there) in growing mix vs. tree on right planted in field. Big difference in growth and green color, eh? Learn anything?

Not really Horticulture, but interesting. At the UMass Orchard I have the three new Cornell named varieties – Cordera, Pink Lustre (or is it Luster?), and Firecracker. One has fire blight, obviously susceptible compared to the other two where there is no fire blight. Read the picture caption below to see which one has fire blight. Cut it out!



Pink Luster (tested as NY 1603) on Geneva 935 rootstock. Fire blight susceptible!

Guest article

BITTER ROT PRIME TIME FOR INFECTIONS IS NOW – HOT AND WET WEATHER

Reprinted (without permission yet!) from Virginia Tech (Srdjan) Acimovic Lab

<https://treefruitpathology.spes.vt.edu/posts/>

Apple bitter rot infections are favored by hot weather periods with warm nights interspersed with rain and high humidity, which is now. The pressure for bitter rot infections in Virginia starts from around Mid-May (south VA) to the end of May/early June (Northern VA). Below I suggest two examples of a line up of fungicide covers spray mixes from 1st to the last cover, just before harvest, with one case for early maturing cultivars (A), and the other for late maturing cultivars (B). You can change these to fit your budget and liking but the key points why you should consider these lineups below are:

(I) Do not use more than 4 spray applications per year of any of the effective Group 11 fungicides (Flint Extra, Luna Sensation, Merivon, Pristine). Yes, that means only four applications per year of one material alone or a combination of several of these materials applied during the summer to a total of 4 cover spray applications per year (No, you cannot apply 4 covers sprays of Merivon, 4 or Pristine, and 2

of Flint Extra per year: that is wrong and will create a huge risk for Group 11 fungicide resistance development in *Colletotrichum* species). Also, do not apply 4 consecutive cover sprays of Group 11 fungicides or any other single site fungicides. You can apply two back-to-back, then the third cover spray use a different group (class) of a single site fungicide.

(II) Incorporate Aprovia (Group 7) and Omega (Group 29) into your cover spray lineup to be alternated from cover to cover with the above Group 11 fungicides as these two new materials are effective for bitter rot control and are different single-site groups (classes) of fungicides attacking different sites in the *Colletotrichum* fungi which cause bitter rot. This is essential for preventing Group 11 fungicide resistance to develop in *Colletotrichum* fungi that cause bitter rot, and will offset selection pressure by the Group 11 fungicides.

(III) Always combine any single-site fungicide (e.g. Frint Extra, Aprovia, Omega) with at least 2.5 or 3 lbs of Captan 80 WDG (or equivalent amount of the captan in any other formulations of your choice) OR Ziram (6 lbs/A). Captan and ziram are the multi-site materials in Groups M04 and M03. The use of multi-site fungicides in mix with single-site fungicides is your second line of defense against fungicide resistance developing in *Colletotrichum* fungi that cause bitter rot. Adding captan or ziram broadens the spectrum of spray mix efficacy, thus reducing the risks for fungicide resistance development.

(IV) One cover spray is worth: 14 days or 2 inches of rain (in one or several rain events), whichever comes first. If no rain falls during 14 days after the previous cover spray, by any chance, you can extend the spray interval to 21 days, under the condition that no rain occurs during the 7 additional days. If a rain event occurs during the additional 7 days, apply a fungicide before that rain regardless if you reached 21 days or not. If 2 inches of rain occur before 14 day interval expires, you need to re-apply your cover spray immediately and not wait until 14th day from your previous cover spray. This is based on the fact that with 2 inches of rain or more your fungicide spray residues in the canopy are depleted beyond necessary efficacy to protect apple fruit from bitter rot.

(A) early maturing cultivars:

1C: Inspire Super 12 fl oz/A + Captan 80 WDG 3 LB/A

2C: Topsin M 1 lb/A + Captan 80 WDG 3 lb/A

3C: Topsin M 1 lb/A + Captan 80 WDG 3 lb/A

4C: Prophyt 64 fl oz/A + Captan 80 WDG 3 lb/A

5C: Aprovia 7 fl oz/A + Captan 80 WDG 3 lb/A

6C: Flint Extra 2.9 oz/A + Captan 80 WDG 3 lb **OR** Luna Sensation 4-5.8 fl oz + Captan 80 WDG 3 lb

7C: Omega 500 13.8 fl oz/A + Captan 80 WDG 3 lb/A

8C: Pristine 14.5 oz/A + Captan 80 WDG 3 lb/A

9C: Captan 80 WDG 3 lb/A

10C: Merivon 5.5 fl oz/A + Captan 80 WDG 3 lb/A

11C: Merivon 5.5. fl oz/A + Captan 80 WDG 3 lb/A

Harvest

(B) Late maturing cultivars:

1C: Inspire Super 12 fl oz/A + Captan 80 WDG 3 LB/A

2C: Topsin M 1 lb/A + Captan 80 WDG 3 lb/A

3C: Prophyt 64 fl oz/A + Captan 80 WDG 3 lb/A

4C: Aprovia 7 oz/A + Captan 80 WDG 3 lb/A

5C: Aprovia 7 oz/A + Captan 80 WDG 3 lb/A

6C: Flint Extra 2.9 oz/A + Captan 80 WDG 3 lb/A **OR** Luna Sensation 4-5.8 fl oz + Captan 80 WDG 3 lb

7C: Omega 500 13.8 fl oz/A + Captan 80 WDG 3 lb/A

8C: Omega 500 13.8 fl oz/A + Captan 80 WDG 3 lb/A

9C: Pristine 14.5 oz/A + Captan 80 WDG 3 lb/A

10C: Captan 80 WDG 3 lb/A

11C: Merivon 5.5 fl oz/A + Captan 80 WDG 3 lb/A

12C: Captan 80 WDG 3 lb/A

13C: Merivon 5.5 fl oz/A + Captan 80 WDG 3 lb/A

Harvest

Useful links

UMass Fruit Advisor: <http://umassfruit.com>

Network for Environment and Weather Applications (NEWA): <http://newa.cornell.edu>

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(<http://www.facebook.com/jmcextman>)

[The Jentsch Lab](#) (Peter Jentsch, Poma Tech)

[Acimovic Lab](#) (Srdjan Acimovic at Virginia Tech)

[Tree Fruit Horticulture Updates](#) (Sherif Sherif at Virginia Tech)

[CCE ENYCHP Tree Fruit Blog](#)

The next Healthy Fruit will be published on or about July 11, 2023. In the meantime, feel free to contact any of the UMass Fruit Team if you have any fruit-related production questions.

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