



Volume 26, 2018



**UMass
Extension**

Healthy Fruit

Prepared by the University of Massachusetts Fruit Program

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Jon Clements, Author (unless otherwise noted) and Editor

Contents

- [Current degree day accumulations](#)
- [Current bud stages](#)
- [Upcoming pest events](#)
- [Upcoming meetings](#)
- [The way I see it](#)
- [New England Tree Fruit Management Guide](#)
- [Insects](#)
- [Diseases](#)
- [Horticulture](#)
- [Hawkeye's corner](#)
- [Guest article](#)
- [Facebook Me](#)
- [Useful links](#)
- [Thank you sponsors...](#)

Current degree day accumulations

UMass Cold Spring Orchard, Belchertown, MA	30-April
Base 43 (NEWA)	144
Base 50 (NEWA)	45

Current bud stages

Current bud stages. April 30, 2018, UMass Cold Spring Orchard, Belchertown, MA

				
McIntosh apple Early tight cluster	Honeycrisp Half-inch green +	Crispie pear Swollen bud +	Redhaven peach Half-inch green +	Rainier sweet cherry Bud burst

Upcoming pest events

Coming events	Degree days (Base 43)	Meaning?
Black stem borer 1st catch	249 to 374	Traps could be made and hung
European red mite egg hatch	231 to 337	Last chance for oil application
Green fruitworm peak catch	96 to 231	If green fruitworm are an issue in your orchard, a pink insecticide is warranted
Green apple aphids present	111 to 265	Don't worry about it...
Obliquebanded leafroller larvae active	158 to 314	Time to start scouting foliage, however, now is not the optimum time to treat or worry about
Pear psylla 1st egg hatch	174 to 238	Oil is no longer enough to handle these buggers (for now). Young

		nymphs are your target for insecticides.
Redbanded leafroller 1st flight peak	230 to 378	Good question?
Rosy apple aphid nymphs present	134 to 266	If RAA is a problem in your orchard, a pink insecticide is advised
Spotted tentiform leafminer 1st catch	118 to 218	Not a problem at this stage, but traps might give you an indication if it is going to be a later problem
Spotted tentiform leafminer 1st oviposition	143 to 273	Ditto above
McIntosh half-inch green	150 to 201	Been there already
McIntosh tight cluster	206 to 257	Coming very soon
McIntosh pink	267 to 316	Later this week

Upcoming meetings

Tuesday, May 8 -- Fruit Twilight Meeting, Apex Orchards, Shelburne, MA at 5:30 PM on May 8, 2018. Tim Smith will be our host. We will meet at his new sales room at 225 Peckville Road. Light dinner will be served. Bloom time disease and insect management, fruit thinning will be topics of discussion. Two pesticide recertification credits. Pre-registration is not required but \$20 meeting fee for individuals getting pesticide credits will be collected at the door.

Thursday, May 10 -- Fruit Twilight Meeting, Foppema's Hilltop Orchard, 9 McClellan Road, Wilkinsville (Sutton), MA at 5:30 PM on Thursday, May 10, 2018. In cooperation with Rhode Island Fruit Growers' Association. Ken and Evan Foppema will be our hosts. Light dinner will be served. Bloom time disease and insect management, fruit thinning will be topics of discussion.

Two pesticide recertification credits. Pre-registration is not required but \$20 meeting fee for individuals getting pesticide credits will be collected at the door.

The way I see it

Jon Clements

Fruit twilight meetings next week, see above. Should be good! Apple fruit thinning will be a major topic of discussion. Should be in full bloom.

Finally things are moving. Expect bloom in apple and peach by the weekend or soon thereafter. Scab infection periods have come and gone, and are coming again. This dry interval a good time to get a fungicide on (again). Don't underestimate the importance of bloom sprays in stone fruit when it is wet and warm to get a head-start on brown rot control. Watch for fire blight conditions as we come in to apple bloom. Get trees planted during this nice, dry stretch coming up! What else is there...???

New England Tree Fruit Management Guide available online

- The New England Extension tree fruit specialists -- which include myself and Dan Cooley at UMass, Mary Concklin at UConn, Heather Faubert at URI, Terry Bradshaw at UVM, George Hamilton and Alan Eaton at UNH, and Glen Koehler and Renae Moran at UMaine -- have officially launched an online edition of the New England Tree Fruit Management Guide. Note that is it easy to print any of the sections, if you want to have old-school reference, for example, to hang on your spray shed wall. Also, it is quite mobile-friendly so make a home screen shortcut to here: <http://netreefruit.org>. Finally, if you really, really want a printed version, and especially if you have Amazon Prime, search 'New England Tree Fruit Management Guide' on amazon.com. Your comments/feedback on this work in progress would be appreciated. How do you get your spray/pesticide information these days?

Insects

Jaime Pinero

Be part of our plum curculio on-farm demonstrations in 2018!

On-farm demonstrations serve as one of the most effective Extension education tools. Although some demonstrations may require considerable time and effort, the payback comes when stakeholders more readily adapt IPM practices they perceive to be effective and appropriate under local conditions. ***Seeing is believing!***

In preparation for the plum curculio (PC) season, we are seeking 12-15 orchards where we can conduct some simple but meaningful on-farm demonstrations involving odor-baited trap trees and entomopathogenic nematodes (EPNs). I believe it is time to demonstrate the usefulness of

this integrated approach to PC control. Below is the basic approach, which involves *no changes to any of your PC control measures, minimal use of your valuable time, and this is at no cost to you!*

1. During apple tree bloom, I would like to visit you and select one perimeter-row tree in an orchard area that is (but doesn't have to be) a PC hotspot. Together, we will deploy one dispenser releasing the PC pheromone (grandisoic acid) and one benzaldehyde dispenser to congregate PCs on that tree (= trap tree).

2. You will manage PC the way you usually do, which includes spraying the trap tree.

3. By the end of June, I will go back to your orchard. Underneath the trap tree we will place two small cages made of PVC, which will be buried to 5 inches deep. Both cages will receive 100 PC larvae. One cage will receive a known number of *Steinerinema riobrave* (nematode species that was found by Drs. Shapiro and Leskey to be the most effective at killing PC larvae). The second cage will serve as control (no EPNs). After nematode application, a capturing device (trap-top consisting of an inverted cone) will be placed on each PVC cage to capture emerging PC adults.

4. Under the canopy of the same trap tree, we will also deploy two emergence cages (3 ft by 3 ft) on the soil. Known numbers of EPNs will be applied to one cage, and the second cage will serve as control. This will **assess in a more realistic way the impact of EPN application with natural densities of PC larvae in these two areas.**

5. By late July, I will visit you again. We will record the number of PCs that emerged from each cage, and I will sample fruit from trap trees and from non-trap trees.

6. In both types of situations (i.e., PVC cage and larger emergence cage), we will compare the number of summer-generation PCs that emerge from each treatment. If EPNs are effective, we should get statistically fewer (averaged across all participant orchards) PC adults emerging from EPN-treated cages than from control cages.

7. That's it!

If you are interested in participating in this demonstration, please click on the link below.

This will happen rather soon, so please let me know within the next 4-5 days (by May 6th).

<https://goo.gl/forms/g2kkAxag18phhxYC3>

The link will open a Google documents window where you can let me know that you would like to participate by providing your name, orchard address, and e-mail address. I will then communicate with you to determine the best day to get to your orchard to deploy BEN+GA.

Do you have any suggestions for articles on arthropod IPM? Please let me know!

Contact info: jpinero@umass.edu; (413) 545-1031 (campus office); (808) 756-2019 (cell).

Diseases

Dan Cooley

See [Guest Article](#) below...

Horticulture

Jon Clements



What does one do with these new planted apple whips? It depends. If growing a conventional central-leader, semi-dwarf orchard, it's easy -- head them off at waist height. If in a tall-spindle system, as these trees are planted 3 feet apart, you have choices.

- Do nothing -- OK, don't head for sure, but if you don't otherwise take steps to promote branching you run the risk of growing a tall tree OK, but maybe w/o much branching. Not too cool...
- Apply Maxcel (or Exilis Plus) in white latex paint to the dormant wood (before buds break!) at 3 to 4 oz per 16 ounces. Use a brush, roller, or sponge and apply only to the area you want more branching. Apply only to one-year-old wood. Please look at the [Maxcel](#) or [Exilis Plus](#) labels for further application details.
- Apply Promalin (or Perlan) at 3 oz. per gallon using a backpack sprayer at first sign of bud-break (some green tissue showing), wetting the area where branching is desired. DO NOT use any surfactant, and avoid application when very hot. Apply only to one-year old wood. Please look at the [Promalin](#) or [Perlan](#) labels for further application details.
- Notch just above each bud where a branch is desired at first sign of bud-break. Preferably using double-cutting blade hand pruners so that the notching is on both sides of the wood, including just above the developing bud.

Whatever you do, keep watered and fertilized so the trees GROW!!!

Prohexadione-calcium (Pro-Ca), Apogee and Kudos for growth control of apples (Duane Greene)

Prohexadione-calcium (Pro-Ca) is the growth retardant of choice for use to help control vegetative growth on apples. For many years we have recommended to make the initial application at petal fall. While growth retardation was achieved when applied at this timing the extent of growth control was somewhat limited. The primary reason for this was that when Pro-Ca was applied shoot growth was occurring very rapidly. Since Pro-Ca requires 10-14 days before growth control is initiated, up to 25% of the potential growth reduction is missed. When we tested making the initial application at the pink stage of tree development, growth control was achieved much earlier and to a much greater extent.

A greater degree of growth control is not achieved by using higher rates of Pro-Ca since only small differences in growth retardation are noted between a rate of 3 oz/100 gal as compared with 12 oz/100 gal. In some instances more growth control is achieved than desired when this early application is used. Rather than adjusting the rate applied it would be preferable to slightly delay the time of application to nearer bloom or petal fall.

There may be other benefits for making the initial application at pink. Early application results in earlier retardation of growth. Since terminal growth competes directly with developing fruit for available calcium, earlier retardation of shoot growth makes it possible to increase the amount of calcium partitioning into the fruit rather than the shoots. We have noted reduced bitter pit in Fuji and Cortland as a result of this early application, but it does not happen all of the time. Recently in an article in Scaffolds it was reported that reduction in bitter pit on Honeycrisp could be achieved with this early application of Pro-Ca. Since calcium only account for a portion of the incidences of bitter pit in apples it is our feeling that this treatment may help

reduce this disorder but it may not eliminate it under all conditions every year.

Hawkeye's corner (notes from the field)

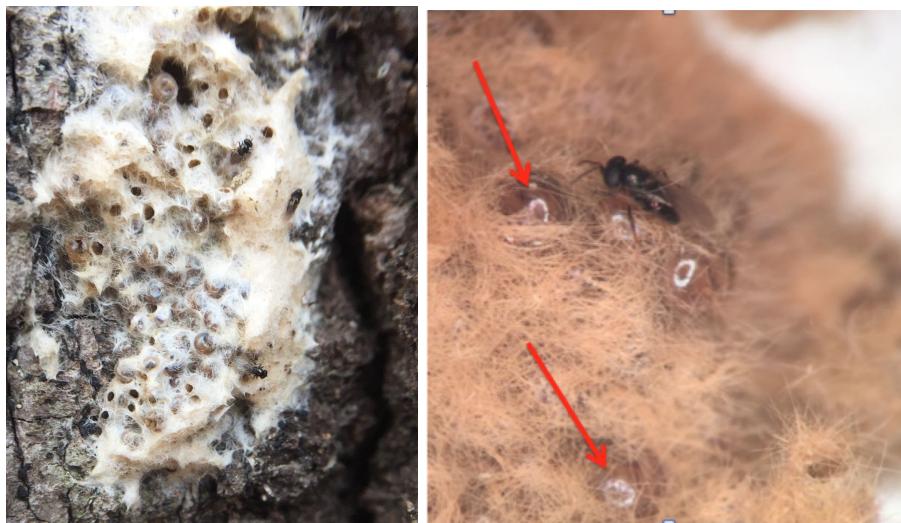
Liz Garofalo

Pear psylla are happily laying eggs all over the pear buds as we speak. Soon, nymphs will emerge and begin sucking the juices out of green tissue and excreting honeydew all over the place making a mess of your pear trees and providing a substrate for sooty mold.



Winter moth update from Heather Faubert:

Egg hatch looks variable this year, click on the [link](#) for Heather's report.



Gypsy moth egg mass on the tree (left), gypsy moth egg mass up close (right), note the imported parasitic wasp (*Ooencyrtus kuvanae*) laying her eggs through the protective “hairs” surrounding the eggs (red arrows). She is only able to reach eggs on the surface of the mass so parasitizes approximately 20% of the eggs she finds.



Close up of *O. kuvanae*. Identification courtesy of Hannah Broadley and Jeff Boettner from [Joe Elkington's lab](#).

Provided this wet weather keeps up, there shouldn't be too much pressure from gypsy moth as the fungus *Entomophaga maimaiga* will proliferate under current conditions and infect the larvae, killing them. A Dipel (or other *B.t.* material), however, on young trees (and blueberries...) will be extra, eco-friendly, insurance against these and other leaf-munching lepidoptera.

Speaking of current (and near future conditions), it looks to be a gorgeous week, with the chance for a fairly significant scab infection on the way Thursday-Friday. Interesting though to note that as the week progresses the forecast shows a decreasing likelihood of rain, something to keep an eye on. Provided the wind doesn't kick up, you have a solid window for scab management Tuesday through Wednesday. For what it's worth, I counted 378 mature ascospores (in ten random fields) on the slide taken from the two-fan, field-based spore trap. These spores were deposited during the last rain event, and, there will be that many again ready to go for the next rain event. Scab season is underway in earnest!

Weather for Belchertown, MA

[More at Dark Sky](#)

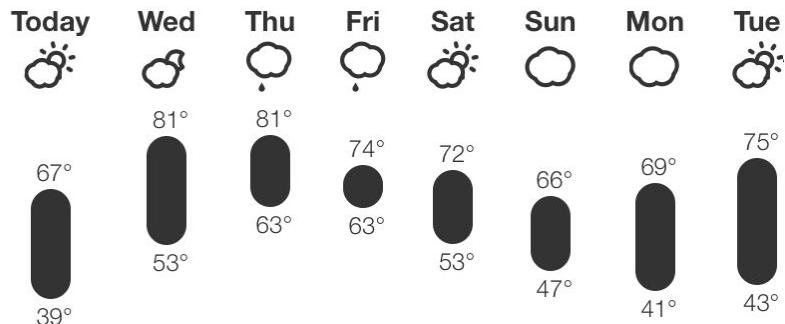


44°

and rising

Partly Cloudy

Wind: 2 mph (NW)



Not to be outdone by scab, **fireblight** (fresh ooze in the photo) is out and looking for some flower to love...and with temperatures predicted to exceed the magic number 65°, bacterial populations will begin building, just in time for bloom.

Guest article

Disease Update: Apple Scab, Fire Blight, and Brown Rot This Week

Kari Peter, Asst. Professor, Tree Fruit Pathology, Pennsylvania State University

<https://extension.psu.edu/disease-update-apple-scab-fire-blight-and-brown-rot-this-week>

May 3–5 could be potential infection periods for apple scab and fire blight. Brown rot infection conditions favorable for open peach blossoms this week.

After a very chilly spring, summer conditions are going to explode this week. If the forecast comes to fruition with the high temperatures and rain, disease conditions will also explode very quickly. Bloom is right around the corner, and this could be a banner week for apple scab and fire blight. Peaches and nectarines are finally in full bloom, and brown rot blossom blight is a risk during this warm weather. However, forecasts can change quickly. Consequently, growers are encouraged to keep a very close eye on the weather in their location to determine appropriate actions to mitigate disease.

Apples

Late pink through petal fall, use FRAC Group 7 fungicides

As we near bloom, we are also nearing the period where the most number of mature overwintering apple scab spores will be available for dispersal. This is period of time, and through petal fall, growers are encouraged to use fungicides containing the FRAC Group 7 mode of action. Even if dry conditions persist during late pink through petal fall, the FRAC Group 7 products will control for powdery mildew control during this time period. These products include Aprovia, Fontelis, Sercadis, Luna Tranquility, Luna Sensation, Pristine, and Merivon. If disease conditions persist and additional fungicide applications are necessary, rotate the FRAC Group 7 fungicides with FRAC Groups 3 and 9. Four complete sprays (eight half sprays) of fungicides containing the FRAC Group 7 mode of action are permitted per season. This includes both premix FRAC Group 7 fungicides (Luna Tranquility, Luna Sensation, Merivon, Pristine) and the stand-alone FRAC Group 7 fungicides (Aprovia, Fontelis, Sercadis). Some of these products are excellent in rot control later in the season and during postharvest. I typically recommend growers use two complete sprays (4 half sprays) of the FRAC Group 7 fungicides during the early part of the season (pink through petal fall) and use two complete sprays of FRAC Group 7 fungicides (Luna Sensation, Merivon, Pristine) near harvest.

Please remember: if disease conditions for apple scab persist from late pink through petal fall, growers have to shorten their interval when using alternate row middle sprays. Monitor the conditions in your orchard closely during this period.

Apples

Preventing a fire blight epidemic

The following information was in the latest Fruit Times that went out on Friday, April 27, 2018, but it bears repeating. Bloom will be occurring this week with the very warm temps in the forecast. Monitor weather conditions closely during bloom: open blossoms, average temperatures >60°F, and wetting events (rain, heavy dew) contribute to the potential for fire blight. Commercial fruit growers are encouraged to remain on guard not only during bloom but during petal fall. Our average temperatures from May 1 through May 5 will be in the upper 60s – 70s (some days, the highs will be in the 80s, lows will be in the 60s). Depending on the varieties, bloom could be fast or linger, based on the cooler temps in the extended forecast after our brief warm up this week.

Here is a plan for growers during bloom and after:

- If bloom begins slowly, consider applying a biological (Serenade Opti, Serenade ASO, Double Nickel) during 10-20% bloom. Approximately 48 hrs later, apply a streptomycin spray since more blossoms will have opened, and trees may be near full bloom.
- Streptomycin still is effective. Use it during bloom: it works. Four sprays are allowed during a season; however, save one spray if a trauma event (hail, high wind) occurs during the season post bloom.
- Incorporate Actigard (2 oz/A) at least in your last streptomycin bloom spray. Actigard is a plant immune system inducer and will offer about seven days protection post application. This is an expensive product; focus on the most susceptible varieties. This will be important for that tricky period post full bloom. Another option would be Vacciplant (20 fl oz/A) to incorporate with your streptomycin sprays. This is plant extract that is labeled to turn on plant defenses. If you use Vacciplant, begin using this by including it in your fungicide pink spray prior to bloom.
- Consider low rates of Apogee/Kudos (2 oz/A) beginning during late bloom/petal fall on susceptible dwarf trees that have filled their space. Our research has shown any rate (as low as 2 oz/A) of ProCa will suppress growth. However, if it is a bad fire blight year, a grower will need to determine their priority: keeping the tree alive vs. getting optimal growth. ProCa will significantly decrease fire blight severity by hardening off the shoots 10-14 days post application. Multiple applications may be needed.

- Apogee/Kudos (full rate) is a must for susceptible semi-dwarf trees.
- If Apogee/Kudos is not preferred for dwarf trees, regular sprays of Cueva (2 qt/A) beginning at petal fall is recommended. We have observed reduced shoot blight using frequent Cueva applications post bloom. Applications are only necessary until mid-late June or when the trees reach terminal bud set.
- In cover sprays post bloom, another consideration is incorporating Vacciplant or Regalia for young, dwarf trees. We are still researching the utility of these products to mitigate shoot blight, but the early results are promising.

Just a word to the wise: If this year ends up being an exceptionally challenging fire blight year, typically “resistant” varieties will get fire blight if the disease pressure is high enough. Read [Apple Disease - Fire Blight](#) for more information and a review for susceptible hosts—which could be lurking near your orchard!

Peaches and Nectarines

Preventing brown rot infections

Blossom infections from the brown rot fungus can occur whenever pistils are exposed, and a favorable climate exists. Infections can occur during any wetting period when temperatures are between 41 and 86°F. However, optimum conditions for infection occur with wetting and temperatures in the mid-70s. We will see those conditions this week. During long wetting periods (several days or more) blossoms can be infected regardless of temperature. Generally, infections that occur when conditions are sub-optimal are less severe. Blossoms and fruitlets will remain susceptible until the pistil desiccates (sometime between petal fall and shuck split). Keep blossoms protected with fungicides for blossom blight. Rotate fungicides by FRAC Group and be sure to tank mix fungicides with a broad spectrum protectant for fungicide resistance management.

Facebook Me

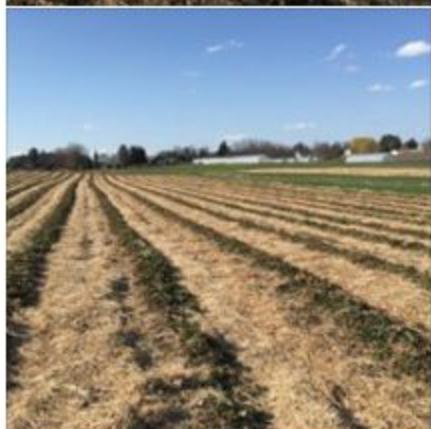


George Hamilton

51 mins ·

...

Finally Spring has Sprung!



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5

Jon Clements At last!
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Useful links

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

Scaffolds Fruit Journal: <http://www.nysaes.cornell.edu/ent/scaffolds/>

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

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[Acimovic Lab at Hudson Valley](#)

[Peter Jentsch's Blog](#)

The next Healthy Fruit will be published on or about May 8, 2018. 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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