Healthy Fruit, Vol. 29, No. 3, April 20, 2021

Prepared by the University of Massachusetts Amherst Fruit Team

Contents

Current degree day accumulations

UMass Cold Spring Orchard, Belchertown, MA (Since March 1)	19-April
Base 43 BE (NEWA, since March 1)	257
Base 50 BE (NEWA, since March 1)	126

According to the NEWA Degree Days prediction, by April 26 (next Monday) we will have reached 310 DD's Base 43 BE. McIntosh bud stage should be open cluster to pink then.

Current bud stages

Current bud stages. 19-April, 2021, UMass Cold Spring Orchard, Belchertown, MA

				
McIntosh apple Tight cluster	Honeycrisp apple Tight cluster+	Gala apple Tight cluster	Crispie pear Green cluster	Redhaven peach Pink

More 2021 bud stages here…

Upcoming pest events

Coming events	**Degree days (Base 43 BE)**
Green apple aphids present	111-265
Obliquebanded leafroller larvae active	158-314
Pear psylla 1st egg hatch	174-328
McIntosh pink bud stage	257-316

Upcoming meetings

Nothing currently on tap, stay tuned...

The way I see it…
Jon Clements

THIS is the way I saw it last Friday where nearly a foot of snow fell at the UMass Orchard in Belchertown, elevation app. 600 feet. See more here. Fruit buds survived, daffodils not so much. Spur leaves look kind of sad also, but I assume all will be well, although we have a ways

to go to get out of this woods. Otherwise, waiting to see what this week brings, good luck out there!

New England Tree Fruit Management Guide available online

A reminder about the online edition of the New England Tree Fruit Management Guide here: http://netreefruit.org. Note that it's easy to print any of the sections, if you want to have an 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 it here: http://netreefruit.org. The print version has been discontinued,only the online version is being updated now.

Insects

Jaime Piñero

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

Period: 4.13 - 4.19.2021

Insect	Average captures/trap	Notes
Tarnished plant bug	0	Unbaited white sticky cards
European apple sawfly	0	Unbaited white sticky cards

Plum curculio	0	Odor-baited traps to be deployed 4.15.21
Oriental fruit moth	2	Pheromone delta trap

Tarnished plant bug (TPB). As expected with this cool weather pattern,almost no TPB were captured in white sticky cards during the preceding week. The weather doesn't look conducive for TPB activity for the next week or so.

Plum curculio (PC). PCs seem to be holding off until warmer weather roles in. Nothing new to report regarding PC.

A note on the application of oil against spider mites. Use 2 gal rate until tight cluster. Reduce to 1 gal rate from tight cluster to oink. Oils can be safely applied up to the pink stage. Since fruit tree architecture includes many cracks and crevices as well limbs and twigs that exponentially increase surface area, coverage to the point of drip is key. Do not use oils within 24 to 48 hours before freezing temperatures, or if temperature is below 35F following a freeze. Do not apply within 10 to 14 days of sprays containing captan or sulfur.

Dogwood borer monitoring and management. Apple growers are increasingly concerned with the impacts of dogwood borers (*Synanthedon scitula*) on dwarf apple trees. These trees, which are grown on size-controlling (dwarfing) rootstocks, have a tendency to develop burr knots, aerial aggregations of root initials, on the rootstock portion of the trunk. Dogwood borer infests apple tree trunks by ovipositing on these burr knots, and feeding damage caused by the larvae often results in loss of tree vigor and shortened tree life.

Dogwood borer infestations in apples have been associated with decreased vigor and even tree death and the lifespan of tart cherry trees is estimated to be reduced by one-third by dogwood borer infestation. Borer injury may also provide infection pathways for fungal or bacterial pathogens, such as rootstock fire blight.

The dogwood borer overwinters as a larva concealed within a burr knot. In spring, it feeds on burr knot tissue until it pupates in May. In early to mid-June, the adults (clear-wing moths) emerge, mate, and lay eggs. In New York, there is typically one brood of larvae in the summer that feed through the fall until they go into hibernation.

Monitoring. Adults appear beginning around 250 growing degree days (base 40), an amount of heat that has already accumulated in Belchertown. Pheromone traps are commercially available and can help to pinpoint the exact time of adult flight and egg-laying activity. Examples include:

- Scentry® dogwood borer 4 station kit, which includes 4 complete traps with plastic tops, 8 extra liners, and 12 lures. Any unused lures may be stored in the freezer and used the following season. Field life is 4 - 6 weeks.

- Trece® Pherocon IC dogwood borer kit, 3 station, which include 3 complete traps with plastic tops, 3 extra liners, and 9 lures. Any unused lures may be stored in the freezer and used the following season. Field life is 4 – 6 weeks.

- Alpha-Scents pheromone lure.

Preventive practices. Avoid physical injury to the tree by unnecessary cutting or bruising. Be careful in use of mowers near the base of trees. Brace newly transplanted trees to protect against strong winds. In some cases, wrapping the trunks of new trees will reduce egg-laying of female moths. Applying white latex paint mixed 50/50 with water can deter some attacks. Maintain optimum growing conditions for trees and remove dead or cankered branches in dry weather.

Chemical control.

- One coarse spray of Lorsban to trunk burr knots between half-inch green and petal fall.
- If not sprayed in spring, and if fresh borer activity is noted in early July, apply one spray of Lorsban in early July.
- Apply Lorsban as a post-bloom application to the lower 4 feet of the apple tree trunk from a distance of no more than 4 feet using low volume handgun or shielded spray equipment. Do not allow spray to contact foliage or fruit, and do not apply within 28 days before harvest.
- Lorsban works when applied in the spring or fall because it infiltrates burr knot tissue and kills larvae concealed within. It is also very persistent in wood, so it continues to work for a considerable time after it is applied (apparently 9-12 months in trials by Cornell University).
- Fall application could offer growers a more convenient alternative for applying borer control sprays. For example, results from trials conducted by Cornell indicated that an October application of Lorsban provided season-long control of dogwood borer
- Recall that Lorsban label restrictions allow only ONE application of any chlorpyrifos product in apples, whether as a foliar or trunk spray.
- Dogwood borer management can be aided with mating disruption dispensers.

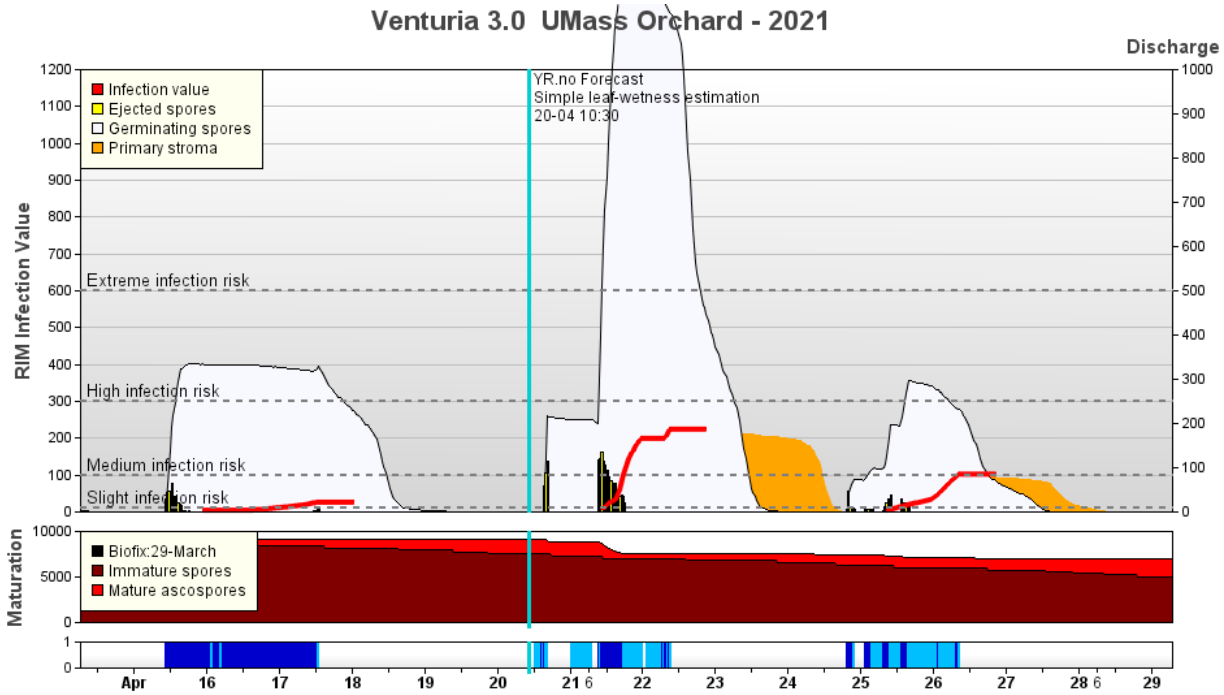
Dogwood borer injury (and larva, picture on the right) associated with an apple burr knot. Photo credit: Alan R. Biggs, West Virginia University.

Diseases

Liz Garofalo and Dan Cooley

With rain in the forecast for Wednesday (currently at 80% chance, according to NOAA), temperatures reaching the mid-60℉s and a possible freeze (down to 31℉) Wednesday night, this will be a busy week.

Apple scab ascospore production is not quite yet at peak production but is ramping up. After last week's rain, an inch and a half in many places across the state, fungicide coverage will likely need to be re-upped. EBDC (Manzate, Polyram, Dithane, etc.) materials remain a good option for now and are also effective against **rust** infections.



RIMpro apple scab primary infection risk forecast currently (as of 2pm 4-20-21) estimates a “medium” plus a little infection risk for tomorrow Apr. 21, 2021.

Cedar apple rust infections occur in warm wet spring weather when overwintering galls on cedar produce telial “horns” which swell in the rain and produce spore that infect apple. These spore are ejected as soon as they develop and can travel far enough to make alternate host removal somewhat challenging. Spore that land on susceptible apple tissue with water on the surface can infect in four hours at ~54℉. GoldRush, Jonathan and Golden Delicious are “very susceptible”. When considering tank mixing for “kickback” activity, the FRAC 3s (Rally, Indar, Cevya) and FRAC 9s (Scala, Vanguard) have efficacy against rust as well.

While **brown rot** infections progress slowly below 55℉ and above 80℉, they develop more rapidly when temperatures are in the mid 60s-70s, requiring only 5 hours of wetting at 77℉ to cause infection. With stone fruit blossoms open and continuing to open, protecting against brown rot is also on the task list for Wednesday when temperatures should reach the mid-60s. Topsin, Captan, Indar and Rally are all “excellent” in efficacy for peach/nectarine and are also labeled for cherry, plum and apricot (captan may cause phytotoxicity in plum).

Read more in the New England Tree Fruit Management Guide.

Horticulture

Jon Clements

Nothing new this week, but please read the article on use of prohexadione-calcium by Duane Greene below.

Guest article

Use of Prohexadione-calcium (Apogee, Kudos) for Growth Control and Fire Blight Containment

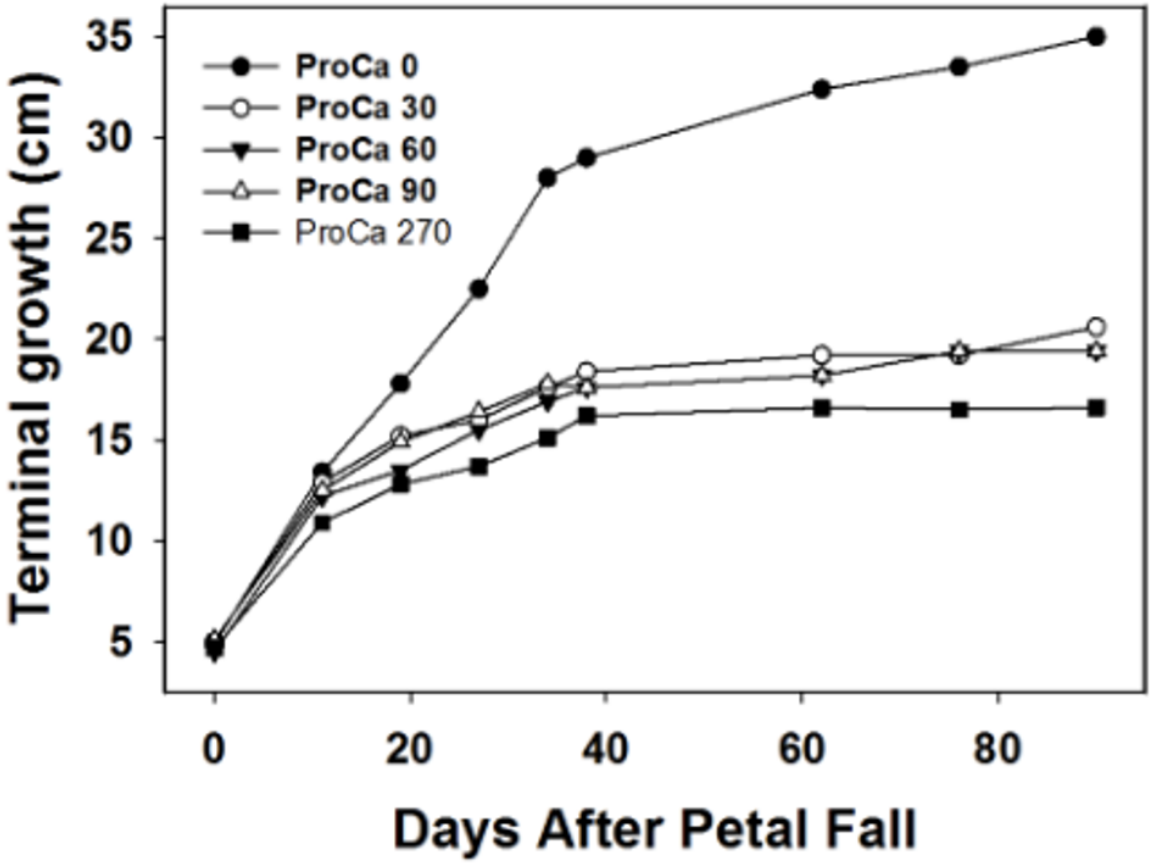
Duane Greene, UMass Amherst

Prohexadione-calcium (Pro-Ca) was first registered for use in orchards in the late 1990s. The suggested time of initial application was at petal fall for both vegetative growth control and for fire blight suppression. These recommendations remained relatively unchanged for at least 15 years. Recent research revealed, however, that an earlier time application had advantages.

Regardless of the intended use or the choice of time of application of Pro-Ca, the spray tank mix should contain:

1. Apogee or Kudos
2. A good nonionic surfactant (1 pint/100 gal is appropriate)
3. A water conditioner such as Quest or Choice used at 2 qt/100 gal. or ammonium sulfate used at a rate equal to the weight of the ProCa used
4. Calcium containing products should not be included in the spray since some products inactivate the ProCa (ed. Note: Agro-K Sysstem-CAL being an exception)

The figure below illustrates the influence of the rate of Pro-Ca applied at petal fall on terminal growth of apples. The take-away message in this figure is that the time after application and the amount of growth reduction is not influenced by the amount of Pro-Ca applied. In the figure the time of initiation and the amount of growth reduction caused by the application of Pro-Ca at 30, 60 and 90 ppm are essentially identical. Therefore, greater reduction in growth by Pro-Ca is not achieved by merely increasing the amount applied. It should also be noted that it requires between 10 days and two weeks for growth suppression following initial application. The application of a greater amount of Pro-Ca does not result in greater shoot growth suppression. Additional Pro-Ca must be applied to maintain growth suppression for extended periods of time in order to maintain growth suppression. Between 4 and 6 oz/100 gallons of spray (dilute tree row volume) is generally adequate for use in the first application. A second application made 3 to 3.5 weeks after the initial application should contain about 3 oz/100 gal Pro-Ca. Usually a third application will be required to maintain growth control and in this application 2-3 oz/100 gal of Pro-Ca would be sufficient.



Pink Application of Pro-Ca for Maximum Growth Control

If the Pro-Ca spray is delayed until petal fall about 25% of the potential growth control is lost since shoots grow very rapidly starting at bloom or petal fall. By the time a Pro-Ca made at petal fall starts to restrict terminal growth, a significant amount of growth has already occurred. It is for this reason that application at the pink bud stage is more effective for growth control than later applications timings. I learned early that it does not require a large number of leaves to unfold to have sufficient leaf area to absorb Pro-Ca. There is nothing physiologically magical about the pink designation other than that is the label designation and it is a universally-recognized flower development stage by most. It also coincides roughly with the development stage where there is sufficient leaf area exposed for absorption Pro-Ca. A rate of 6 oz/100 gal is sufficient to satisfactorily retard growth and I suspect a lower rate would be adequate. If too much growth retardation is achieved by application made at pink, an application made later, between pink and petal fall results in less growth retardation. Application made at petal fall will result in less growth control than applications made earlier.

ProCa to Inhibit Fire Blight

Both the Apogee and Kudos labels now permit application of Pro-Ca at pink although the Kudos label limits the initial application to 6 oz/100 gal.There is little advantage to making the initial

application of Pro-Ca at a rate higher than 6 oz/100 gal. (Ed. note: if using Apogee, you should have the Apogee Sec. 2ee supplemental label in your possession.)

It was recognized during the initial development of Pro-Ca that it could provide trees with some protection against shoot fire blight. Kerik Cox, a pathologist from Cornell, noted the use of application of Pro-Ca at Pink resulted in very early shoot growth retardation so he tried application at Pink and achieved early retardation of fire blight. Pro-Ca has no direct inhibitory activity on the fire blight bacteria but it does result in early thickening of the cell walls in new shoots, resulting in earlier inhibition of shoot blight than if the initial application was delayed. Thus, Pro-Ca seems to create a physical impediment to invasion.

Early application of Pro-Ca to inhibit fire blight comes at the cost of greater vegetative growth retardation. This early reduction in growth on trees may be considered undesirable. George Sundin, pathologist at Michigan State University, has put forth a suggestion that involves using two oz/100 gal Pro-Ca plus 1 oz of Actigard per acre and applying it at petal fall of the king flower. Dan Cooley endorses this approach. The later application suggested here results in less initial shoot growth retardation and the lower rate applied means that the shoot will resume growth sooner.

The use of Pro-Ca for fire blight management, especially on young trees, will always involve making a compromise between shoot blight retardation and unwanted shoot growth reduction. It appears that the suggestion of George Sundin for using 2 oz Pro-Ca plus Actigard at one oz per acre is good and a reasonable compromise for fire blight control in young blocks.

Facebook Me

Christian Smith is at **C.N. Smith Farm Inc.**
April 18 at 10:00 AM · East Bridgewater ·

Peach 🍑 bloom.

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Useful links

UMass Fruit Advisor: http://umassfruit.com

UMass Extension Fruit Team YouTube Channel

UMass Fruit Loop IPM Podcast

Scaffolds Fruit Journal (1995-2020). With the retirement of Dr. Art Agnello from Cornell University, this publication has come to an end. See Peter Jentsch's blog below.

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

Follow me on Twitter (http://twitter.com/jmcextman) and Facebook (http://www.facebook.com/jmcextman)

Acimovic Lab at Hudson Valley

Peter Jentsch's Blog

The next Healthy Fruit will be published on or about April 27, 2021. 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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