Healthy Fruit, Vol. 29, No. 4, April 27, 2021

Prepared by the University of Massachusetts Amherst Fruit Team

Contents

Current degree day accumulations

UMass Cold Spring Orchard, Belchertown, MA (Since March 1)	26-April
Base 43 BE (NEWA, since March 1)	304
Base 50 BE (NEWA, since March 1)	148

According to the NEWA Degree Days prediction, by May 3 (next Monday) we will have reached 395 DD's Base 43 BE. McIntosh bloom should be occurring 344-415 Degree Days Base 43 BE.

Current bud stages

Current bud stages. 26-April, 2021, UMass Cold Spring Orchard, Belchertown, MA

				
McIntosh apple Early pink	Honeycrisp apple Pink?	Gala apple Very early pink	Crispie pear Early bloom	Redhaven peach Bloom

More 2021 bud stages here…

Upcoming pest events

Coming events	**Degree days (Base 43 BE)**
European red mite egg hatch complete	368-470
Green fruitworm flight subsides	267-499
Lesser appleworm 1st catch	276-564
Lesser appleworm 1st flight peak	364-775
Oriental fruit moth 1st flight peak	331-533
Pear psylla 1st egg hatch	174-328

Redbanded leafroller 1st flight peak	232-382
Spotted tentiform leafminer 1st flight peak	267-405
Spotted tentiform LM sapfeeding larvae present	343-601
Spotted tentiform leafminer mines forming	367-641
White apple leafhopper nymphs on apple	302-560
McIntosh bloom	344-415

Upcoming meetings

You are invited to a Zoom meeting: Bloom Fruit Team “Virtual Twilight “Meeting
When: **May 6, 2021 05:30 PM** Eastern Time (US and Canada)

Register in advance for this meeting:
https://umass-amherst.zoom.us/meeting/register/tJcqc-2orTMtGdJO8BzzPTNd8hXpHrlZBqeH

After registering, you will receive a confirmation email containing information about joining the meeting. One pesticide recertification credit.

The way I see it…
Jon Clements

Here we are at apple pink bud four weeks after green tip. Not too speedy, eh? Those little fruit buds out there have endured some trying conditions, cold, wind, etc. Cold and wind can lead to desiccation. Are they as tired as the rest of us? TBD? But I am still optimistic (that’s unusual) and the potential for a snowball bloom of apple is certainly there. Peaches are in good bloom

right now, but pollinating insects have been largely absent (too cold). Doesn't take much with peaches though to set a peach crop. I'm predicting apple full bloom (on average) early next week, beginning May 3rd or so? **Update:** during an orchard visit today, Tuesday, some damage to apple buds was noted. Not a complete evaluation, but there was some damage, I expect it might have been the result of temperatures in the mid-20's last week when apple buds were approaching tight cluster. Damage might have been in the 10 to 50% range based on those temperatures. For reference, see Critical Spring Temperatures for Tree Fruit Bud Development Stages. We are not out of the woods yet.

I attended the Cornell/NY pink meeting yesterday via Zoom, if my memory serves me correct, here are some take-homes:

- Dr. Terence Robinson says precision pruning down to a desired fruit bud load before bloom is essential on biennial bearing varieties such as Honeycrisp to reduce seed numbers immediately. As soon as fruits start forming at petal fall, the forming seeds produce gibberellins which immediately can inhibit flower bud formation for next year. Then it's too late to prevent the biennial bearing cycle.
- Dan Donahue showed evidence (again) that prohexadione-calcium (Prohex-Cal, Apogee, Kudos) applied during the pink bud stage reduced bitter pit in Honeycrisp apples being stored. Later application of Prohex-Cal actually increased the bitter pit. Six oz. per acre assuming tall-spindle trees is the Prohex-Cal rate at pink bud.
- Dr. Lailiang Cheng suggested on nitrogen-sensitive varieties such as Honeycrisp, earlier application of ground-applied nitrogen is less likely to end up in the fruit. So the timing for that N application would be bud break to bloom but not after bloom.
- Dr. Kerik Cox on scab, and fire blight. True to Kerik's form, he was kind of all over the place :-) But I think in NY where they have documented fire blight resistance to streptomycin, a multi-pronged approach to fire blight management, should conditions warrant, includes Kasumin, Actigard, oxytetracycline, and Blossom Protect. (Jon says, fortunately here in New England we don't appear to have fire blight strep-resistance, so continue to use streptomycin during bloom when it's wet and warm. And follow the fire blight models.) Oh, and the idea that fire blight requires wetness for infection MIGHT include high humidity only, not necessarily a wetting event. Hmmm...
- Dr. Jaime Pinero and his team here in New England put up a lot of traps in 2021 for early season apple pests, including tarnished plant bug, European apple sawfly, and plum curculio. His conclusion, the need for a pre-bloom insecticide spray is rarely warranted, as trap catches were almost always below treatment thresholds.

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.

And while not Guide related, don't forget to take a listen to the audio version of each Healthy Fruit issue for free here: https://anchor.fm/umass-fruit-loop

Insects

Jaime Piñero

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

Period: 4.20 - 4.26.2021

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 (deployed 4.15.21)
Oriental fruit moth	8	Pheromone delta trap

Tarnished plant bug (TPB). No TPB activity was recorded this past week. We have deployed 243 white sticky cards in 23 MA orchards, and 46 traps in 2 NH orchards. A few TPB have been captured in 5/14 MA locations (zero in NH).

Plum curculio (PC). Not much to report regarding PC. The first PCs are expected to start moving in this week.

Oriental fruit moth. The first captures of OFM at CSO took place on April 14th (1 male). The number of OFM captured this past week is 8/trap. BIOFIX was set on April 26 at CSO.

Rosy apple aphid. Of the aphid species that can be found on apple trees, rosy apple aphid causes the most severe damage and is the most difficult of the three to control. The body of this aphid has a waxy coating and usually a slight purplish or rosy tinge. The body of this aphid has a waxy coating and usually a slight purplish or rosy tinge. Egg hatch already occurred (between silver tip and ½-inch green). The nymphs feed on the outside of the leaf bud and fruit bud

clusters until the leaves begin to unfold. Then they work their way down inside the clusters and begin sucking the sap from the stems and newly formed fruits. Their feeding causes the leaves to curl, affording the aphids protection from insecticide applications and some natural enemies.

A cool, wet spring favors aphid development because it provides conditions unfavorable for parasites and predators of aphids.

DAMAGE. These aphids cause a decrease in tree vigor because of foliage loss and damage to the fruit through dwarfing, misshaping, and staining. The rosy apple aphid injects a toxin with its saliva that causes the leaf to curl and the fruit to be distorted. A single stem mother located on the underside of a leaf near the midrib will cause the leaf to fold almost as tightly as the outer wrappings of a cigar. The presence of only a few stem mothers can cause a severe curling of all leaves surrounding an opening flower bud; within such curls ideal protection is afforded to the rapidly developing aphids. ‘Cortland', 'Ida Red', and 'Golden Delicious' are the varieties most frequently showing fruit injury. Fruit adjacent to rosy apple aphid colonies are stunted, puckered at the calyx end, and ridged like a pumpkin.

MONITORING. Starting at early pink, select 5 to 10 trees per block. Sensitive varieties such as ‘Cortland', 'Ida Red', and 'Golden Delicious' should be selected if present. For 3 minutes, on each tree, count the number of fruit spurs showing curled leaves. The presence of more than one aphid-infested cluster per tree justifies an insecticide treatment to prevent fruit injury. Samples should be taken from the upper parts of the canopy on the inside of the tree where rosy apple aphid colonies are most common.

CONTROL (post-petal fall): Because the curled leaves protect the aphids, then the best control will be achieved with a systemic insecticide. The recommended systemic insecticide is MOVENTO at a rate of 6 to 9 fl. oz. For best results, tank mix Movento with a spreading and penetrating spray adjuvant.

Click here to access the MOVENTO LABEL.

Diseases

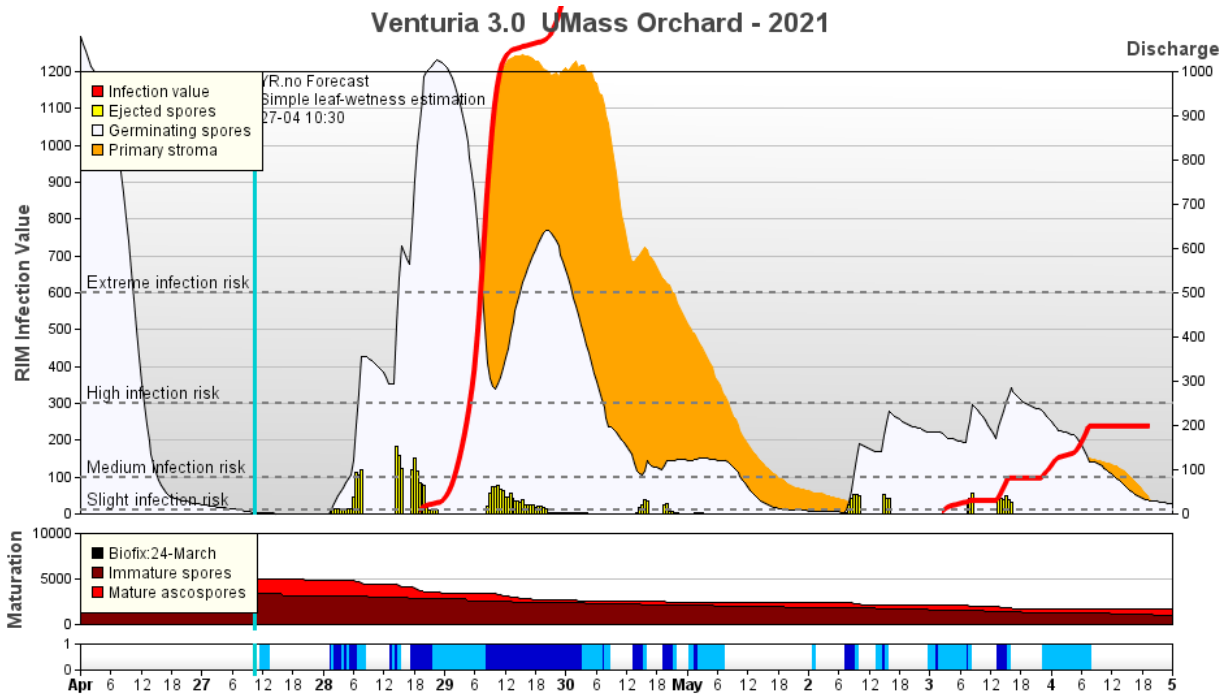
Liz Garofalo and Dan Cooley

Dry conditions persist across Massachusetts and much of the Northeast.
In spite of the lovely rain we had a little while ago, the U.S. Drought Monitor reports widespread "abnormally dry" conditions for MA, with localized "moderate drought" (parts of Franklin, Worcester, Middlesex and Essex Counties), with the exception of the Cape and Islands which are currently escaping the water deficit.

Location	Current Annual Precipitation	Normal Annual Precipitation	Difference
Belchertown, MA	9.63"	13.76"	-4.13"
Greenfield, MA	13.16"	15.14"	-1.98"
Lowell, MA	7.84"	14.37"	-6.53"

Locations presented were selected based on comprehensiveness of data available, not necessarily relative proximity to an orchard. Each site listed is experiencing a water deficit represented by the negative number in the Difference column.

The weather station at the UMass Cold Spring Orchard has clocked 0.59" of rain since the last issue of Healthy Fruit was published with average temperatures in the mid to upper 40s. So, not enough rain to cause critical wash off, not enough time to cause fungicide degradation, but, potentially enough heat accumulation to push out fresh susceptible tissue for tomorrow's forecast multi day infection event. While NEWA's output is a little… wonky... right now (the NEWA team is working furiously to fix that as I type), I *can* share RIMpro's forecast output with you:



And, boy oh boy is it a doozy! The weather forecast calls for lows in the upper 40s, highs in the mid-60s to low 70s, relative humidity to hit 50% around 9pm tonight and four nights and ~2.5 days worth of rain and if that doesn't spell apple scab infection, I don't know what does. As you can see in the graph above, RIMpro concurs. In fact, RIMpro is currently estimating that the UMass Cold Spring Orchard will see its first *significant* infection event and that said infection event will be - literally - off the charts. If you consider that a RIM of 300 is considered "high" risk, then off the charts (RIM in excess of 1200) must be "sit down and buckle up" risk level. The amount of rain in the forecast is not sufficient to cause wash-off of existing coverage, however, the climatic conditions are such that, over a three day infection event, trees will be pushing out plenty of susceptible tissue that will not necessarily benefit from the redistribution properties of some fungicides. Get covered up ahead of this one if you are not already. Chances are, once the weather allows you to get in, a protective and a kickback material should be applied after this event in anticipation of the next infection event estimated to begin May 3.

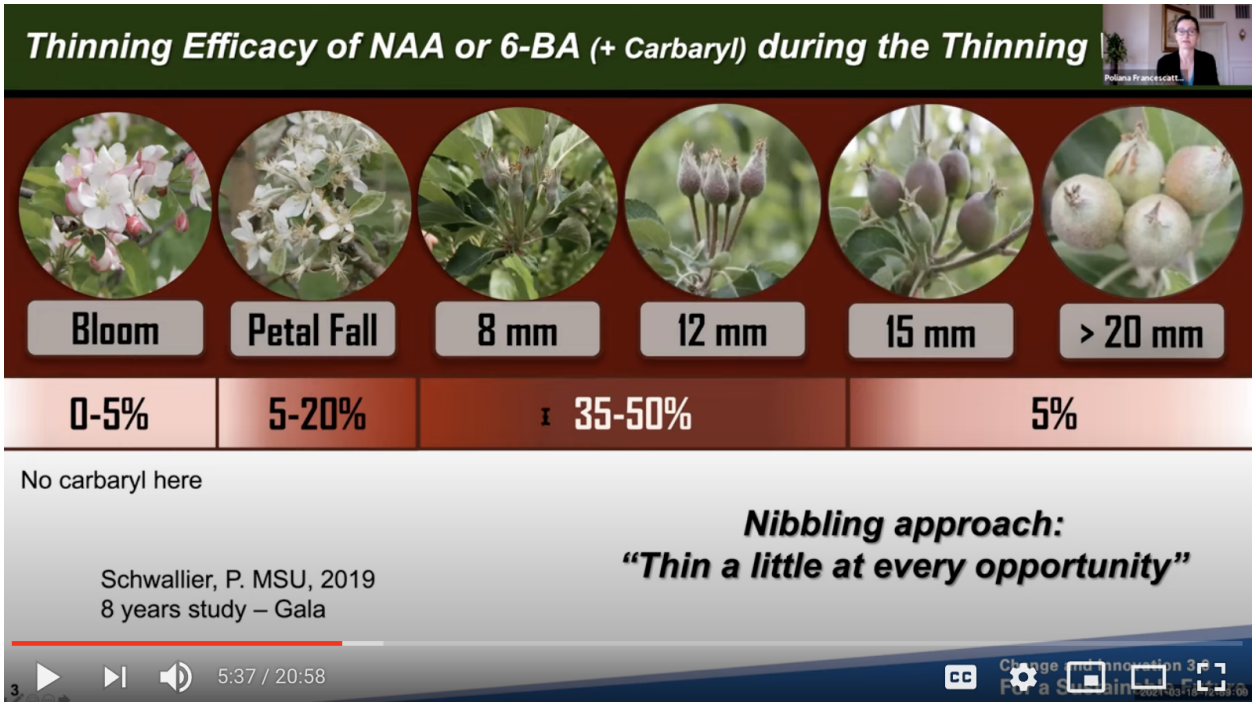
An unofficial notes from the field:

Gypsy moth caterpillars have begun to emerge in Greenfield, MA. Typically, these pests are managed by the nucleopolyhedrosis virus (NPV) and a fungus called Entomophaga maimaiga. The issue we may face this year is, of course, drought. Like many pathogens, these that affect young GM larvae require moisture to get the job done. When climatic conditions are not adequate to support these pathogens, GM can cause issues in landscapes and crops like blueberry and young apple trees. Given that last year was also a drought year, being prepared to manage these caterpillars if you see them ballooning into susceptible crops with a Bt material while they are still small is a good plan.

Horticulture

Jon Clements

Please take 21 minutes of your time to watch this video wherein Dr. Poliana Francescatto, Valent Biosciences talks about “The Physiology Behind Apple Fruit Thinning.”



https://youtu.be/1g0JOYMMT3E

Guest article

Introducing NEWA 3.0: Updated Models and Resources for Growers

Dan Olmstead, NEWA Coordinator, NYS IPM Program

The Network for Environment and Weather Applications (NEWA) is an important resource in the IPM toolbox for growers. 2021 is bringing long-awaited updates and improvements that were designed specifically with grower needs in mind. This article will quickly get you started with NEWA 3.0 during this period of transition. Read more here…
https://blogs.cornell.edu/yourenewa/2021/04/22/introducing-newa-3-0/

Facebook Me

Jon Clements
April 23 at 2:54 PM ·

What would YOU do? Don't be shy. Want to assure branching beginning about 30 inches up to about 48-54 inches. Not too worried about buds breaking above that. These are tall-spindle, 3 feet apart.


4 28 Comments

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Doug Fruit Wagon Balsillie
We have used a fine tooth hacksaw blade ... actually removes a little bark then Maxcel at 500 to1000 ppm , either sprayed or in latex paint

1

Like · Reply · 3d

View 4 more replies

Gabe Spurgeon
Maurice Tougas do you bend the whole tree to the side? What's the timing? Sounds like something that would work. This is exactly what we do with our blackberries in spring (albeit different reasons).

Like · Reply · 2d

View 2 more comments

Write a comment...

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 May 4, 2021. In the meantime, feel free to contact any of the UMass Fruit Team if you have any fruit-related production questions.

Nourse Farms

New England Vegetable & Berry Growers' Association

Massachusetts Fruit Growers' Association

Valent USA

Onset