Volume 30, 2022

UMass Extension

Healthy Fruit

Prepared by the University of Massachusetts Fruit Team

Healthy Fruit, Vol. 30, No. 1, April 5, 2022

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)	4-April
Base 43 BE	131
Base 50 BE	40

Current bud stages

Current bud stages. 4-April, 2022, UMass Cold Spring Orchard, Belchertown, MA (more current bud stages here)

				
McIntosh apple *Late silver tip*	Honeycrisp apple *Silver tip*	Gala apple *Early green tip*	Crispie pear *Swollen bud*	Redhaven peach *Bud swell*

Upcoming meetings

Every Tuesday at noon - UMass Fruit Team Open Office Hour
https://umass-amherst.zoom.us/j/97190816203 Bring your own lunch.

Tuesday, April 19, 2022, 4:30 PM - UMass Fruit Team Twilight Meeting, UMass Cold Spring Orchard, 393 Sabin Street, Belchertown, MA. Details forthcoming.

Wednesday, May 18, 2022, 5:30 PM - URI/UMass Twilight Meeting, Spencer Morris's Orchard, Warren, RI. Details forthcoming.

The way I see it

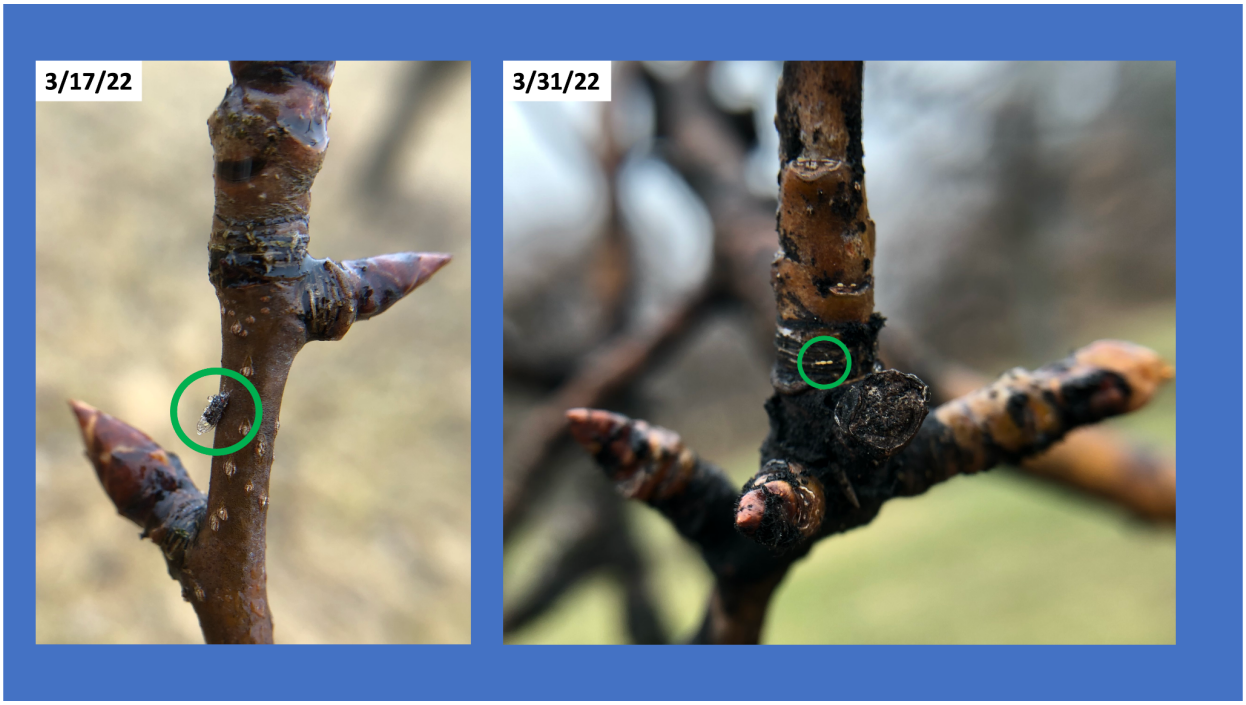
This MAY be your last Healthy Fruit (HF) Electronic Subscription, unless you go to the UMass Extension Bookstore (http://umassextensionbookstore.com) and purchase a new 2022 subscription to HF ($65, e-mail delivery only) in the next week or two. Alternatively, you can send me (Jon Clements, 393 Sabin St., Belchertown, MA 01007) a check for $65 made out to 'University of Massachusetts.' Make sure you note it is for Healthy Fruit subscription, and include your email address. You can also use this mail-in form to order Healthy Fruit and other UMass fruit publications. You can ignore this of course if you have already sent in your payment. And we very much appreciate your subscription, thanks for supporting the UMass Fruit Team.

Beginning April 5, and then every week on Tuesdays at noon (12 PM), the UMass Fruit Team will host an informal Open Office hour via Zoom. We will generally have brief updates on entomology, pathology, and horticulture and leave time for questions and answers. We hope you can come in from the field 15 minutes early at 11:45, make a sandwich, and join us and be back out in the field no later than 1 PM. Sounds like fun, eh? Here's the Zoom link, it will be the same every week: https://umass-amherst.zoom.us/j/97190816203

Otherwise, see my comments in Horticulture below…

Entomology

Pear psylla has been active, if somewhat slow moving, since March 17. With temperatures creeping up, egg laying has begun in some locations. The first eggs (I have) observed were at UMass Cold Spring Orchard on March 31. The photos below show you just how small these insects, and especially their eggs, are. Scouting with a hand lens is recommended to determine if psylla are active. Using a hand lens is the only way to determine the presence of eggs. As you can see in the photo below, even at 12.5X, those eggs are very difficult to spot. Pro tip: when scouting for eggs, examine new shoots, focusing around the base of bud scales and bud scale scars (as shown in the photo on the right below).



Left: a cold and dewy adult pear psylla, Right: psyla eggs- the very small whitish-yellow dots within the green circle. Photos taken at 12.5X.

A degree day model has been developed by Washington State University to help pinpoint psylla development and subsequent treatment. Accumulations begin January 1 and use a base of 41℉. Given this information, using NEWA's DD calculator, we see that Belchertown has accumulated 103 Pear Psylla Degree Days (PDD). Which means - you guessed it - it's time to get out and make an oil application if you have not already. Getting a jump on psylla now will set you up for greater management success as the season wears on and populations build and begin to overlap.

Psylla trapping? Yes, yes indeed. Our team will be looking at using sticky traps, baited and unbaited, for psylla monitoring. As the season progresses, we will share our findings with you. Currently, traps are hung at UMass Cold Spring Orchard, others will be deployed and checked weekly. Stay tuned!

Fun Find of the Week OR Name That Egg Mass:

Not everything you find in the orchard is cause for concern, sometimes it's just fun to pause and enjoy the critters… or in this case their eggs. Head over to Insta and leave your guesses in the comments!

When should dormant oil sprays be applied to apple trees? Dormant oils kill pests by suffocating them. When applied properly, the thin film of oil plugs the spiracles (small openings alongside the thorax and abdomen through which the mite or insect breathes). Proper timing is critical when using dormant oil sprays.

It's getting late to apply dormant oil. Dormant oils should be applied before the plants show signs of breaking dormancy (before “bud break”). Keep in mind that dormant oils applied in February or early March are not effective as insects are not actively respiring at this time and, therefore, are not vulnerable to the oil’s suffocating effects. Dormant oil sprays should be applied as close to bud break as possible when temperatures are above freezing (over 40 degrees F is ideal), but also below 70 degrees F.

Tarnished plant bug (TPB). Perhaps not an insect that has been on your radar in recent years. For the past three years, TPB has been well controlled in most apple orchards. Ground cover management is a critical component of TPB IPM. Avoid mowing or using herbicide between pink and petal Fall because disturbance of alternate hosts in the groundcover may cause TPB to move into apple trees.

TPB adults can be monitored using a visual, white sticky trap set at silver tip. About 200 white sticky traps are being deployed across MA. The action threshold during tight cluster for apples ranges from a cumulative average of 3 TPB/trap of 5/trap depending on quality standards. The action threshold during late pink ranges from a cumulative average of 5/trap to 8/trap. Examine 10 terminals per block for bleeding buds. Action threshold is 2-3 sap-bleeding sites per

10-terminal sample. TPB activity is highly dependent on temperature, so that 2 or 3 days of warm (50-60 degrees), sunny weather triggers increased foraging and feeding behavior.

Senstar™ Insecticide. Senstar™, a new product (2021 label for pome and stone fruit) from Valent U.S.A. is now available for use in pome fruit. This material has two active ingredients (Spirotetramat* and Pyriproxyfen) with two effective modes of action. Key pests include aphids (woolly apple aphid), mealybugs, and pear psylla.

Senstar™ Insecticide is a product that delivers translaminar movement within the foliage tissue and true systemic activities (movement in the xylem and phloem). Spirotetramat also has unique translocation properties; after foliar uptake the insecticidal activity is translocated within the entire vascular system, i.e. it moves upwards and downwards through its translocation in the xylem and phloem, respectively. Such properties even allow the control of hidden pests such as root aphids and the protection of new shoots or leaves appearing after foliar application.

The translaminar activity can help to reach target pests that feed on the underside of leaves. The systemic activity of Senstar Insecticide will enable it to achieve control of pests moving into new vegetative growth that was not present at the time of application.

Senstar™ Insecticide must be tank mixed with a non-ionic surfactant (such as Regulaid) that possesses spreading and penetrating properties to improve the delivery of the product onto the surface of the foliage and into the vascular systems of the target crop or plant. The limit for pome fruit is 12-18 ounces (two applications).

Note: Ample leaf tissue must be present for uptake and translocation of this product; due to this requirement, do not apply prior to petal-fall on pome and stone fruit.

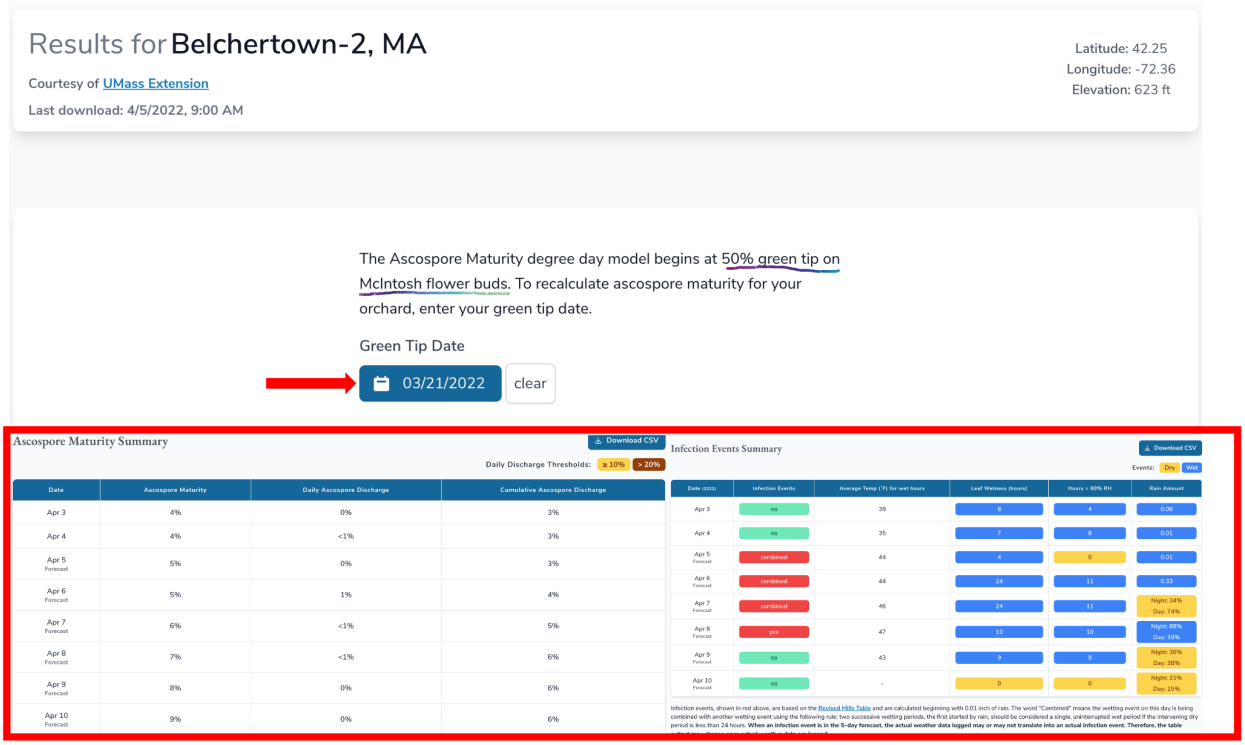
To access the label of Senstar insecticide, click HERE.

**Spirotetramat is the same active ingredient present in Movento (by Bayer). Movento's label restrictions include: "Do not apply more than 3 applications per crop with a minimum 14 days between applications".*

***Pyriproxyfen is the same active ingredient present in Esteem 35 WP (by Valent). Esteem 35 WP label restrictions include "no more than two applications per growing season".*

Pathology

Apple scab- Lab counts reveal 12 ascospores in the funnel trap and zero in the petri plate assay. The difference here is between active or forced ejection (funnel trap) and passive ejection (petri plate). So, while the funnel trap indicates that there are spores mature, the petri plate assay results suggest that the number of spores mature and ready to eject are so low as to be undetectable. So, what we have here is the old target and ammunition analogy: the target, i.e. susceptible green tissue, is very small to non-existent at this time (see Jon's bud stages at the top of the page) and the amount of ammunition- spore density- is so low that you can't even chamber a round, let alone hit a target.



Consider the above image your annual reminder that NEWA will auto populate the green tip date for your location based on DD accumulations. You will need to manually enter your 50% McIntosh Green Tip date. Once you do this, the system will remember this date. You will see an updated ascospore maturity table (left red box), however, the estimated infection events (right, red box) based on the false GT date will remain. Above you can see, based on the false GT date, the system is estimating an infection event on April 5 through April 8.

Bottom line: 1) Make a pass through those scabby blocks with a flail mower (or some such implement of destruction) to chop up infected leaves and reduce inoculum, 2) Make sure your sprayers are calibrated. 3) No fungicides needed yet, copper on deck and ready to go. 4) If you are using NEWA, make sure you enter the proper green tip date, when it occurs in your location.

Horticulture

Jon Clements

Apple green tip

Apple green tip is defined as when 50% of McIntosh apples are showing a green tip. Not Zestar!, not Cripps Pink, not Liberty, not Redfield! Not RubyMac, not Gala! It's important to use McIntosh green tip date as that is what the various NEWA tools – Apple Scab and Apple Carbohydrate Thinning – use as their 'biofix.' Once you reach 50% McIntosh green tip, don't forget to enter that date into the NEWA tool.

	
McIntosh green tip from previous year	Roger McIntosh at silver tip (still) on 4-April at UMass Orchard, Belchertown. It's not green tip yet!

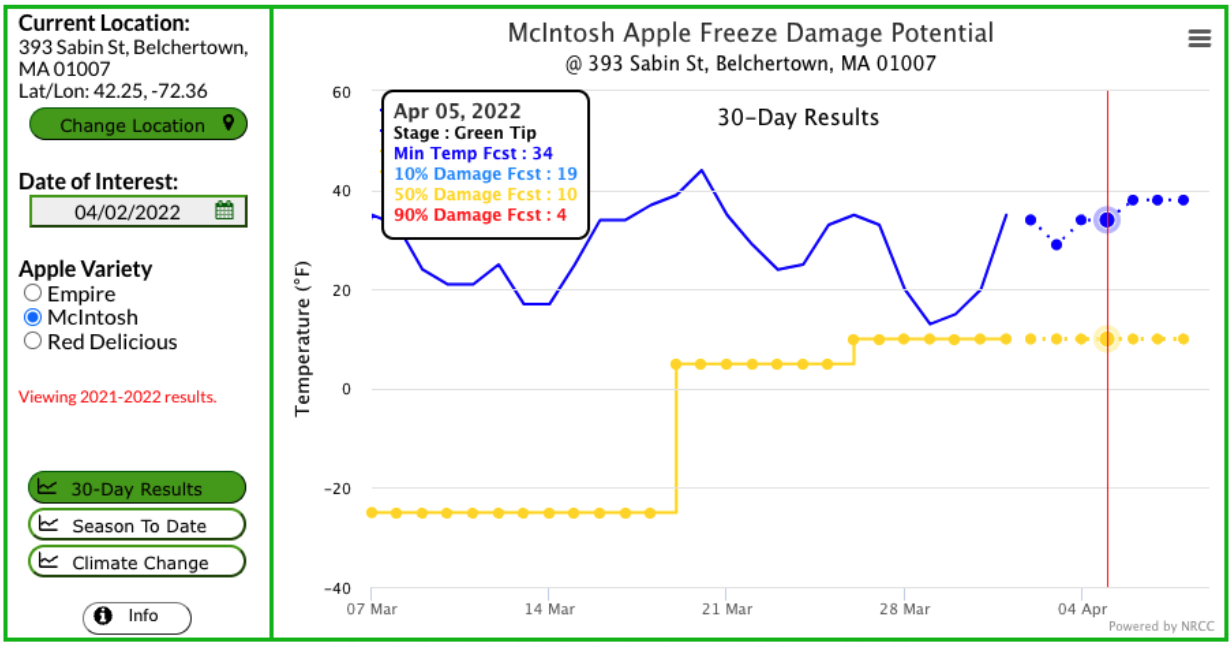
Freeze/frost injury to fruit buds

For future reference, here is a [Picture Table of Critical Spring Temperatures for Tree Fruit Bud Development Stages] from Michigan State University.

CRITICAL SPRING TEMPERATURES FOR TREE FRUIT BUD DEVELOPMENT STAGES

Pome Fruit (Apples and Pears)									
Apples									
Apples	Silver tip	Green Tip	Half inch green	Tight Cluster	First Pink	Full Pink	First Bloom	Full Bloom	Post Bloom
Old temp	16	16	22	27	27	28	28	29	29
10% kill	15	18	23	27	28	28	28	28	28
90% kill	2	10	15	21	24	25	25	25	25
Pears									
Pears	Bud scales separating	Blossom buds exposed	No name	Tight cluster	First White	Full White	First Bloom	Full Bloom	Post Bloom
Old temp	18	23	No data	24	28	29	29	29	30
10% kill	15	20		24	25	26	27	28	28
90% kill	0	6		15	19	22	23	24	24

I also like to use Climate Smart Farming CSF Apple Stage / Freeze Damage Probability which estimates your current bud stage based on Degree Day accumulations and shows the Freeze Damage Potential (past and future) for a selected (you?) location for Empire, McIntosh, and Red Delicious apples.



NEWA 3.0 - What you need to know

The 'new' NEWA (3.0) has officially launched and you will notice – if you already did not notice – the user interface has changed substantially. It's important now that you sign in and choose your favorite station(s) and crop and IPM tools for more efficient use of NEWA. So take 5 minutes and look at NEWA 3.0 - what you need to know.

Guest article

No guest article this week…

Useful links

UMass Fruit Advisor: http://umassfruit.com
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)
The Jentsch Lab (Peter Jentsch, Poma Tech)
Acimovic Lab (Srdjan Acimovic at Virginia Tech)
Tree Fruit Horticulture Updates (Sherif Sherif at Virginia Tech)

The next Healthy Fruit will be published on or about April 12, 2022. In the meantime, feel free to contact any of the UMass Fruit Team if you have any fruit-related production questions.

Thank you sponsors…

Orchard Equipment and Supply Company, Inc. Conway, Massachusetts

Nourse Farms

New England Vegetable & Berry Growers' Association

Massachusetts Fruit Growers' Association

Valent USA

Onset

Trécé

FARM CREDIT EAST

Farm Credit East