



Healthy Fruit, Vol. 26, No. 2, April 10, 2018

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](#)

[Guest article](#)

[Facebook Me](#)

[Useful links](#)

[Thank you sponsors...](#)



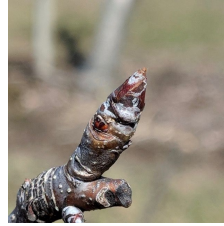


Current degree day accumulations

UMass Cold Spring Orchard, Belchertown, MA	9-April
Base 43 (NEWA)	57
Base 50 (NEWA)	19

Note that apple green tip should occur app. 101 DD (Base 43), although obviously there is a range. We are still at silver tip (9-April) in Belchertown. If the current forecast holds, we might be close to 100 DD's by early next week. BTW, DD's did not increase at all from last week! Exceptional!

Current bud stages

Current bud stages. April 9, 2018, UMass Cold Spring Orchard, Belchertown, MA

				
McIntosh apple Silver tip	Honeycrisp apple Dormant	Gold bosc pear Dormant	Redhaven peach Dormant	Regina sweet cherry Dormant

Upcoming pest events

Coming events	Degree days (Base 43)	Meaning?
Green fruitworm 1st catch	50 to 148	Too early to do anything! You are not targeting the moths, but the worms when they hatch later.
Pear psylla adults active	31 to 99	Oil should be applied to prevent early egg laying.
Pear psylla 1st oviposition	40-126	Start scouting for eggs (still time for oil if you haven't gotten it on yet).
McIntosh silver tip	63-107	Will winter ever end?
McIntosh green tip	98-145	Apply copper and/or oil

Upcoming meetings

10-April, 2018 (Tuesday) Fruit Twilight Meeting at 5:30 PM. UMass Cold Spring Orchard, 391 Sabin Street, Belchertown, MA. <http://coldspringorchard.com/> Shawn McIntire will be our host.

Jaime Pinero, our new UMass Extension fruit entomologist will be welcomed. 2 pesticide recertification credits will be offered. Light dinner will be served. \$20 admission for those receiving pesticide credits. Contact: Jon Clements, 413-478-7219. Pre-registration is not necessary.

11-April, 2018 (Wednesday) Fruit Twilight Meeting at 5:30 PM. Carlson Orchards, 115 Oak Hill Road, Harvard, MA. <http://www.carlsonorchards.com/> The Carlson brothers will be our hosts. 2 pesticide recertification credits will be offered. Light dinner will be served. \$20 admission for those receiving pesticide credits. Contact: Jon Clements, 413-478-7219. Pre-registration is not necessary.

12-April, 2018 (Thursday) Fruit Twilight Meeting at 5:30 PM. Henry J. Steere Orchards, 150 Austin Avenue, Greenville, RI. <http://www.steereorchard.com/> In cooperation with Rhode Island Fruit Growers' Association. Two hours of pesticide credit should be available (pending) and a light dinner will be served. The meeting is free for RIFGA members and \$20 for non-members. Contact: Heather Faubert, 401-874-2967 or Jon Clements, 413-478-7219. Pre-registration is not necessary.

The way I see it...

- This WILL be your last Healthy Fruit (HF), unless you go to the UMass Extension Bookstore (<http://umassextensionbookstore.com>) and purchase a new [2018 subscription to HF](#) (\$65, e-mail delivery only) in the next week or two. Alternately, you can send me (Jon Clements, 393 Sabin St., Belchertown, MA 01007) a check for \$65 (tips accepted) made out to 'University of Massachusetts.' Make sure you note it is for Healthy Fruit subscription, and includes your e-mail 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. Thanks.
- Sometimes I run into some confusion regarding our UMass fruit program publications and membership in [Massachusetts Fruit Growers' Association](#) (MFGA). MFGA membership is \$200 (\$25 for non-grower members) and includes a complimentary subscription to American Fruit Grower. It does not include any UMass fruit program publications. You can join or renew your MFGA membership using a credit card [here](#). (You can also make a voluntary donation to the UMass Cold Spring Orchard Research & Education Center, UMass Apple IPM Program, and/or MFGA's Horticultural Research Fund.) You can also join or renew MFGA using a mail-in form [here](#). Note that using the mail-in form you can also order UMass fruit publications, but I don't recommend ordering UMass fruit publications with your MFGA membership using that form. If you want to order UMass fruit publications, I recommend you use [this mail-in form](#). (Or you can order and pay using a credit card at the [UMass Extension Bookstore](#).) I hope that clears things up a bit. I encourage you to both join MFGA and order the UMass fruit publications that are of interest to you. More information on our UMass fruit publications is available [here](#). If you have any questions, please get in touch with me.

- Not much has changed from last week. As a lay-person, I am so done with this weather. (It was a cold bike ride yesterday!) Here's an interesting take from Dave Epstein, @growingwidsom on Twitter: Ponder this w/ heat on. For the final 9 days of February average high was 55, "normal" would be about 41. The first 8 days of April, average high has been 47, "normal" is 51. Today's high of 40 in Boston, is average for February 21st. In New England, averages are extremes.

So, green tip still looks a week off, but about a week. Be ready when it hits with copper spray, and maybe oil (especially for pear psylla).

Did I tell you one more cold day is one more cold day before next winter! Acckkk!!!

Yes, you got the message by now, It's still cold and the growing season has not started, but Fruit Twilight Meetings must go on. We have a full schedule this week, dress warm, and we will be welcoming our new UMass Extension fruit entomologist, Jaime Pinero, at all of them. Hope to see you there, I suspect we will argue about pruning. Also likely to have some cider at at least one of the meetings. :-)

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 Faurbert 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 it is 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

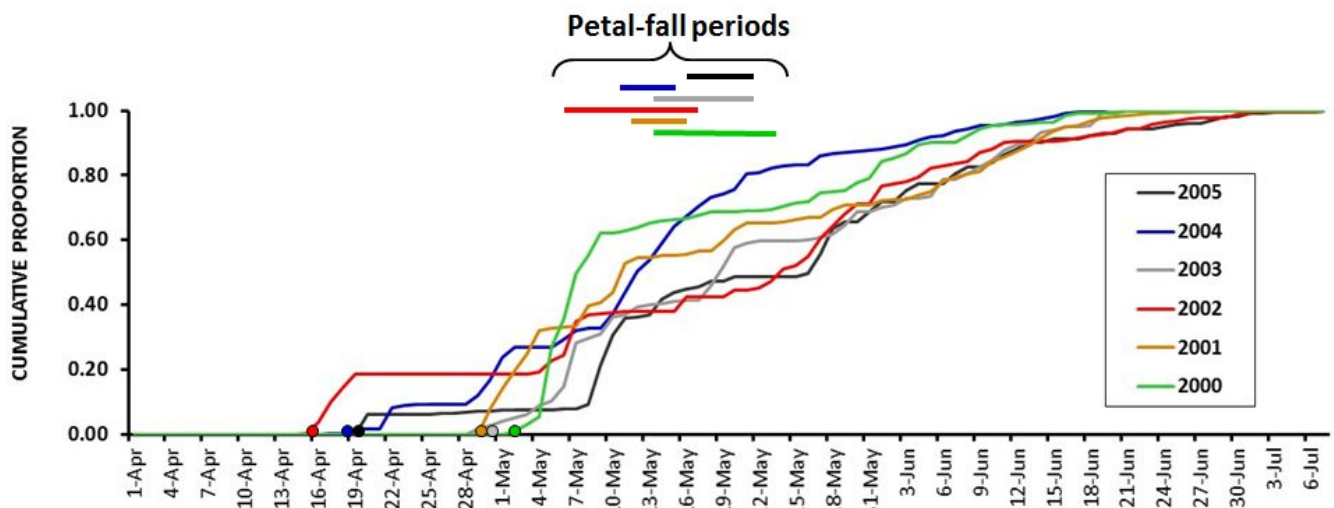
Jaime Pinero

A look into patterns of plum curculio immigration and research plan for the 2018 season.

From 2000 to 2005, the temporal dynamics of plum curculio (PC) immigration into an unsprayed section of the UMass Cold Spring Orchard was investigated using black pyramid traps and plexiglass panels coated with Tangle trap (sticky material). The main goal was to establish the relationships between the timing of immigration, weather factors, and phenological tree stage over a 6-year period. Panel and pyramid traps baited with the synergistic lure composed of the PC pheromone (grandisoic acid = GA) and benzaldehyde were deployed near woods adjacent

to orchard trees. Traps were checked daily during the entire period of PC immigration. Below is a summary of findings:

- ❖ In all, 4,697 PCs were captured by traps across all six trapping years.
- ❖ On average, the entire period of PC immigration lasted 66 days, with the shortest and longest periods encompassing 51 days in 2000 and 85 days in 2002, respectively.
- ❖ Across all 6 years, most immigrant PCs (57% of the total, on average) potentially colonizing host trees were intercepted by traps by the time of petal fall.
- ❖ Growing Degree Days reflected more accurately onset and extent of PC immigration than tree phenology. The onset of immigration occurred at 228 DD₄₃, and 50% cumulative captures took place at 484 DD₄₃, on average (2000-2005 data).
- ❖ In terms of dates, the first adult PCs were captured on May 2nd (2000), April 30th (2001), April 15th (2002), April 29th (2003), April 17th (2004), and April 21st (2005) – see figure below. This means that, depending on weather conditions for the next few weeks, PCs might start becoming active very soon!
- ❖ After petal fall, PC females tend to lay eggs inside the ‘king’ fruit, and as the season progresses, the smaller fruit will be preferred over the ‘king’ fruit because of the pressure exerted by the hard, expanding tissue on larger fruit.



For each of the 6 trapping years, cumulative plum curculio captures (expressed as proportion of the total) by panel and pyramid traps combined, according to date. Horizontal lines above the graph indicate, for each year, the duration of the petal-fall period. Onset of PC immigration is represented by a colored circle.

The above information supports the recommendation of a whole-block insecticide spray against PC by petal fall. This spray will also take care of tarnished plant bugs.

A look into the 2018 PC season: Starting in a couple of weeks, panel and pyramid traps will be set up at the UMass Cold Spring Orchard with the main goal of screening selected plant volatiles that could potentially increase the attractiveness of GA + benzaldehyde. A secondary goal is to validate the predictive value of growing Degree Days for the onset, 50%, and 90% cumulative PC captures. Use of sticky panel traps will also allow for monitoring of other early-season pests such as tarnished plant bug, as they immigrate into apple orchards. If the attractiveness of GA + benzaldehyde could be increased, then this lure could have even more potential for use as part of attract-and-kill systems for PC control. Weekly updates will be provided.

In the next issue: How odor-baited trap trees can be integrated with entomopathogenic (= insect-killing) nematodes to kill both PC adults and larvae in commercial apple orchards.

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

Diseases

Dan Cooley

Chillin' with Scab

Observations of overwintered scab inoculum, ascospores, has consistently indicated that there are some mature and ready. This is true in Massachusetts, southern New England and the Hudson Valley. But what does it mean in terms of scab risk and the need to spray?

First, there's no infection potential until green tissue is visible. Put on copper if none has gone on yet. As I said last week, apply at least 2 lb. of metallic copper per acre. The amount of material applied will depend on the percent of metallic copper in a material.

Adding oil to a copper spray will improve its effectiveness and longevity. If used only as a spreader/sticker, 1 qt/100 gal. is enough to do the job. If you are also controlling insects, add enough oil to do that too.

If a significant frost is predicted, though, stay away from either copper or oil. Frost can lead to damage from either copper or oil, as it causes them to be drawn into tissue when it thaws. Putting the two together would probably cause even more damage.

Copper can be applied through green tip, and will give some scab protection. If it has been more than 5 days since copper was applied, and green tissue emerges, and rain is predicted, it's time to use something else.

In most areas, some ascospores will be released with rain over the next week to 10 days, but the relative amount of inoculum and the risk of infection are both low. When green tissue pops, and rain is predicted, apply a low rate, 3 lb/A, of an EBDC (Dithane, Mancozeb, Penncozeb, etc.) should be sufficient to protect.

If a block had a lot of scab last year, or rain is predicted for several days, adding a low rate of captan, 2.5 lb/A of Captan 80WDG or equivalent, or Syllit, or Vangard or Scala, will increase protection.

RIMpro predicts no risk of scab at Belchertown until April 17, and even then it will be relatively low disease pressure. This is true of the other RIMpro stations we're monitoring around the region.

Similarly, with a green tip date of April 15, NEWA predicts no risk of scab to that date, where the forecast stops. Ag-Radar has not yet started.

If cool temperatures persist for the next two to three weeks, even with a few warm days, scab inoculum will mature slowly, and trees will grow slowly, keeping scab risk relatively low – but still there!

Horticulture

Jon Clements

A rogue's gallery of renewal pruning cuts

A basic pruning rule for tall-spindle apples is to remove (using a thinning cut) 2 to 3 of the biggest branches on the tree. There is often much discussion when doing this as to what kind of cut and how long a "stub" to leave. At one time a bevel -- sometimes called a "Dutch" -- cut was used. (I prefer to call it a bevel cut.) The idea being to leave [adventitious buds](#) at the bottom of the cut which will grow out into a renewal shoot and replace the old branch. Sometimes it works. Sometimes it doesn't. More recently, it seems like the thing to do is to leave a longer stub cut when renewal pruning tall-spindle apples. OK, but, I think they are kind of ugly. Not that I don't do them, I just seem to see lots of different successes (and failures) after doing the renewal cut, not matter what kind. I do have some observations, and take a look at the pictures below. So now, I have a tendency to mix it up, depending on what I feel like, and the logistics of making the cut. And don't worry about it too much -- just don't leave those big branches in tall-spindle apples please!

Here are some of my observations with a few pictures to better illustrate:

- 1.) Often you can get very good results with a bevel cut. Oh, “often” could be defined as 51% of the time!
- 2.) Often you can get very good results leaving a longer stub cut; but sometimes you get undesirable results too, where for example, you may get a shoot going straight up!
- 3.) Logic has it that the younger the wood, the more likely an adventitious bud will take off, so don’t let those branches get too big before you cut them off!
- 4.) When leaving stubs while pruning sweet cherry, and hoping to get some renewal growth, I was told that some sunlight really needs to get on that cut. Why would apples be different? Therefore, heavily shaded renewal cuts might be less successful? Think about it, don’t let your tall-spindle trees get too dense!
- 5.) Does variety make a difference? The thought is Honeycrisp is particularly hard to get a renewal cut to shoot out new growth? Is it really? I will say that I would guess more vigorous scions would be likely to have the energy to pop-out a renewal shoot, and we know Honeycrisp is on the weaker side, so this makes sense.
- 6.) It’s not easy to do, but similar to notching buds to break branches on very young wood, if when making a bevel cut, should some effort be made to “break” into the collar and/or trunk bark? (Thanks Steve Hoying.) Would that more likely result in a nice renewal shoot? But it’s not always easy to do this...



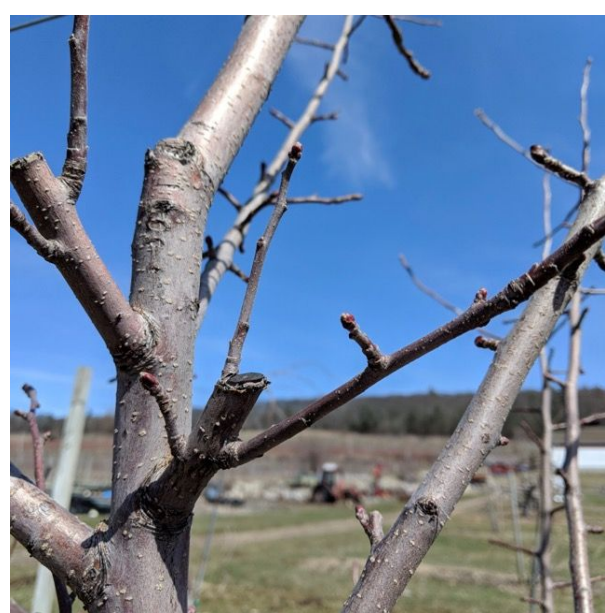
Failure -- too shaded? Note there are two
duds there...



Shaded stub cut -- resulting shoot did not
grow too well there, did it?



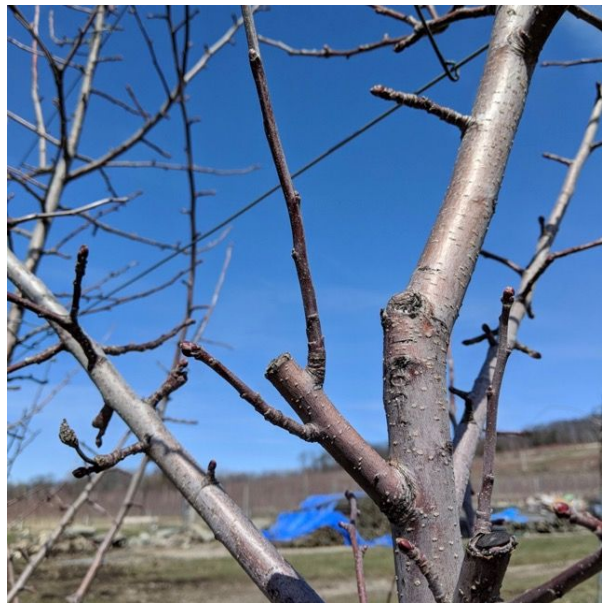
Nice two-year-old shoot (look close) result of
long stub cut -- was long cut necessary?



Another nice two-year-old shoot from stub
cut. But what's up with upright -- needs to go!



The problem w/ long stub cuts? Vigorous uprights can result, needs to be pruned out.



Similar problem, but upright can be cut out. Arghhh, more work!



Stub cut made this year -- probably the safest bet on Honeycrisp if you want re-growth!



Bevel cut with incursion into collar/trunk bark. More likely to result in shoot from bottom?

Hawkeye's corner (notes from the field)

Liz Garofalo

Not much by way of field notes to write in today, what with us being in the middle of the season I like to call “third winter”. In the lab, however, we are starting to see some apple scab ascospore action. There are, of course, mature spores in the squash mounts. By now you’ve heard me gripe about these enough to know what they are, but, just in case you have forgotten, a squash mount is performed by removing the wee tiny apple scab fungus fruiting bodies from leaves that were infected last year, placing these structures (pseudothecia) on a glass slide, laying a glass cover over them and then, well, squashing them. But, more interesting than squash mounts, and more relevant to practical scab management, is that we are also seeing spores released in simulated ejection tests at *one* of our scab research sites (Belchertown). Which is to say, under the right conditions, spores are shooting out of leaves overwintered at Cold Spring. Even though we have not reached green-tip (50% on Macs, at any rate), we have entered into early primary scab season. As Dan said in last week’s Healthy Fruit, this is not a year to trifle with scab. There is a high level of inoculum kicking around from last year’s mess of infections and spores look like they are going to be ready to go right at green-tip. You will thank yourself later if you put in the time to implement some last minute sanitation (mow the bejeepers out of those leaves!). I really can’t belabor that point enough.

I’m going to leave these psylla pictures in for you again this week, just as a reminder of what you should be looking for when you are out scouting your pears.



Pear psylla: overwintered adult.

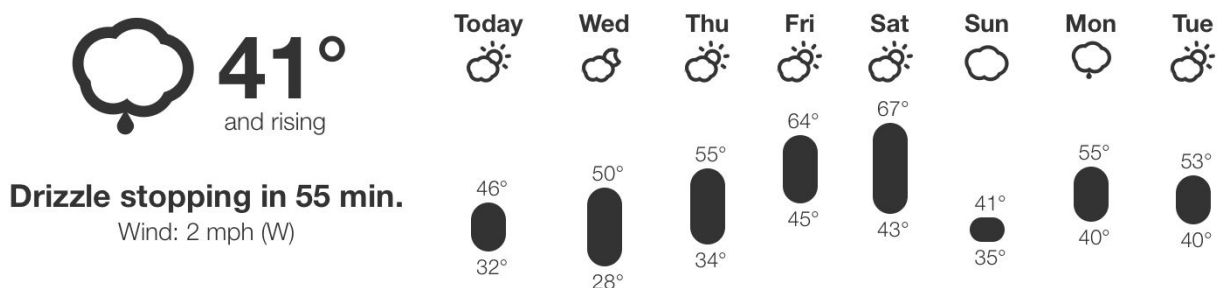


Pear psylla: eggs

Oil, its not *just* for psylla, or pears for that matter! Mite eggs (and a little later in the spring, san jose scale) will be smothered by an oil application. Dormant trees (stone fruit too) should get a 2-3% oil, where this pest has been an issue. Oil is less damaging to the predatory insect populations you have been fostering in your orchards and will not build a insect/miticide resistant population of pests to beleaguer you in the future. Looking at the forecast (image below) for the coming week in Belchertown, Thursday on provides a good opportunity to apply oil while avoiding freezing temperatures. You want to avoid oil applications for 48 hours after a freezing event and wait for a window of 24-48 freeze free hours.

Weather for Belchertown, MA

More at [Dark Sky](#)



One more comment on leaf litter management in the orchard. Not only will leaf chopping reduce the scab inoculum in the orchard, but, it will reduce the cover on the soil in row which will enable your pre-emergent herbicide to do its job, rather than getting all bound up in that leaf litter layer. More to come on weeds...

Winter moth, for those of you who have to grapple with this pest, is predicted to begin hatching sometime between April 14 and April 22. Rather than attempting to duplicate the great work Heather Faubert does, though, I will just give you the link to her update:

<https://web.uri.edu/ipm/2018/04/winter-moth-update-april-10/>

Guest article

NEWA Apple Disease Tools Now Save Biofix Date – and More

Juliet Carroll, NYS IPM Program, & Kerik Cox, Plant Pathology and Plant-Microbe Biology; jec3@cornell.edu & kdc33@cornell.edu. Reprinted from [Scaffolds Fruit Journal](#), Volume 27 No. 3, April 9, 2018

The apple scab and fire blight models on NEWA will now (1) save your apple biofix dates, (2) allow you to "click out" of biofix dates that are too early, and (3) provide the full model interface from the Station Pages.

(1) Biofix dates for apple scab and fire blight

Tired of entering green tip dates and first blossom open dates over and over again? That's now being saved! The NEWA apple diseases tools will now save the green tip date, first blossom open date, and the orchard blight history selection. The biofix date that you last entered is saved in local storage in the web browser's cache. You may need to clear your browser's cache to enable local storage and see these changes. The dates and orchard characteristics cached are specific to the weather station location and the year used. The information saved is what you last entered when using the tool for that weather station and year.

To get ready for spring disease management, here's what's saved after you enter it:

- Apple Scab – green tip date (50% green tip on 'McIntosh' apple or closest equivalent.) For the ascospore maturity model, McIntosh apple phenology was used for the research the model is based upon. Always use this variety for your orchard of interest, unless you aren't growing it; then use the closest equivalent.
- Fire Blight – first blossom open date on variety of interest and orchard blight history selection for block of interest. For the Cougar Blight and Epiphytic Infection Potential (EIP) models, use the first blossom open date for the variety of interest in the block of interest to get the results for that variety.
- This information is saved locally in your browser's cache. Local storage from your browser is not backed up, so if it is cleared (deleted), it will need to be reentered. Always keep a record of your biofix dates and orchard characteristics. You may need to clear your browser's cache to enable local storage and see these changes. Remember, though, that clearing your browser's cache will delete your saved biofix dates and you may not want to do that if NEWA is already saving them.

(2) Biofix has not occurred yet

Is the NEWA-estimated biofix date too early and you want to eliminate it? Now you can! On the Apple Diseases tools for apple scab (green tip date), fire blight (first blossom open date) and sooty blotch / flyspeck (petal fall) a "Click if <biofix> has not occurred" button returns you to the pre-biofix IPM information for that apple disease tool. This is especially important for fire blight, because the pre-biofix IPM message contains fundamental information about scouting for oozing, overwintering fire blight cankers. For apple scab, the pre-biofix message informs you about getting ready for the upcoming primary infection season.

(3) Full interface access from Station Pages

Do you want to see what happened last year or change the biofix date on an apple disease or insect tool when accessing it from a Station Page? Now you can! Previously, the Station Page Pest Forecasts for apple diseases (apple scab, fire blight, sooty blotch/flyspeck) and insects (spotted tentiform leafminer, oriental fruit moth, codling moth, plum curculio, obliquebanded leafroller, apple maggot) provided current day results only.

Now, those links will take you to the current day results in the fully functional interface, including the map, results, and more info tabs. The left-hand part of that interface allows you to select dates in the past to look at what the tool predicted for last year or prior years. You also can select an alternate weather station location and see the map of weather stations. A link below the model results will return you to the Station Page for the weather station of interest.

For more details on this, read more information in the Your NEWA blog, Apple tools made easier to use, <http://blogs.cornell.edu/yourenewa/2018/03/27/apple-tools-made-easier-to-use/>. While there, subscribe to the Your NEWA blog to get the new posts.

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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>

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 17, 2018. In the meantime, feel free to contact any of the UMass Fruit Team if you have any fruit-related production questions.

Thank you sponsors...

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