Volume 31, 2023

UMass Extension

Healthy Fruit

Prepared by the University of Massachusetts Fruit Team

Healthy Fruit, Vol. 31, No. 1, April 4, 2023

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, 2023)	3-April
Base 43 BE	93
Base 50 BE	20

Current bud stages

Current bud stages. 3-April, 2023, UMass Cold Spring Orchard, Belchertown, MA (more current bud stages here)

Rubymac apple *Early green tip*	Honeycrisp apple *Late silver tip*	Gala apple *Late silver tip*	Cripps pink apple *Early green tip*	Crispie pear *Early swollen bud*

Upcoming meetings

Tuesday, April 11 - RMA Apple Grower Listening Session - via Zoom,1:00 PM – 3:00 PM (Central Time)

Virtual Session
Meeting URL: Click here to join the meeting
Meeting ID: 265 720 911 373 Passcode: HBLTR2
For audio only (call in): 1-314-530-5560
Passcode: 707132719#

The Risk Management Agency (RMA) is inviting interested parties to participate in a listening session to discuss the proposed changes to the apple crop insurance program. These proposed changes were published in a Proposed Rule with request for comments on December 16, 2021. RMA invited public comments on this rule through April 15, 2022. RMA received comments to the Proposed Rule from approximately 200 interested parties. RMA is taking this opportunity to engage with interested parties to clarify the intent of the Proposed Rule before finalizing changes. A Final rule will be published no earlier than August 2024 for the 2025 crop year.

Every Tuesday at noon (12 PM), beginning April 11 - UMass Fruit Team Open Office Hour. Bring your own lunch. Join Zoom Meeting
https://umass-amherst.zoom.us/j/97712996237

Wednesday, April 19 - URI/UMass Fruit Twilight Meeting, Jaswell's Farm, 50 Swan Road, Smithfield, RI. 6:30 PM. Two (2) pesticide recertification credits available.

Wednesday, April 26 - UMass Fruit Twilight Meeting, Mann Orchards Riverside Farm, 445 Merrimack St, Methuen, MA. Details TBD.

Thursday, May 4 - UMass Fruit Twilight Meeting, Riiska Brook Orchard, 101 New Hartford Road, Sandisfield, MA. Details TBD.

The way I see it

This will be your next to last Healthy Fruit (HF) Electronic Subscription, unless you go to the UMass Extension sales portal (https://extensionsalesportal-umass.nbsstore.net/fruit) and purchase a new 2023 subscription to HF ($75, 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 $75 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 11, 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/97712996237 Be patient as I let you in from the "waiting room."

Otherwise, believe it or not, degree-days (Base 43 and 50 BE) are lagging a bit behind last year, but bud stage is more advanced (slightly) this year than it was at this time last year. Expect things to move fast when it warms up as the apple trees are really primed and ready to go. Peaches, that is another story, I am not seeing any bud swell here at the UMass Orchard. Sad not-so-smiley face. I will miss pruning the peach trees during bloom, it is so pretty. So see Guest Article below on how to deal with peach trees in 2023 with no crop. Thanks Win Cowgill.

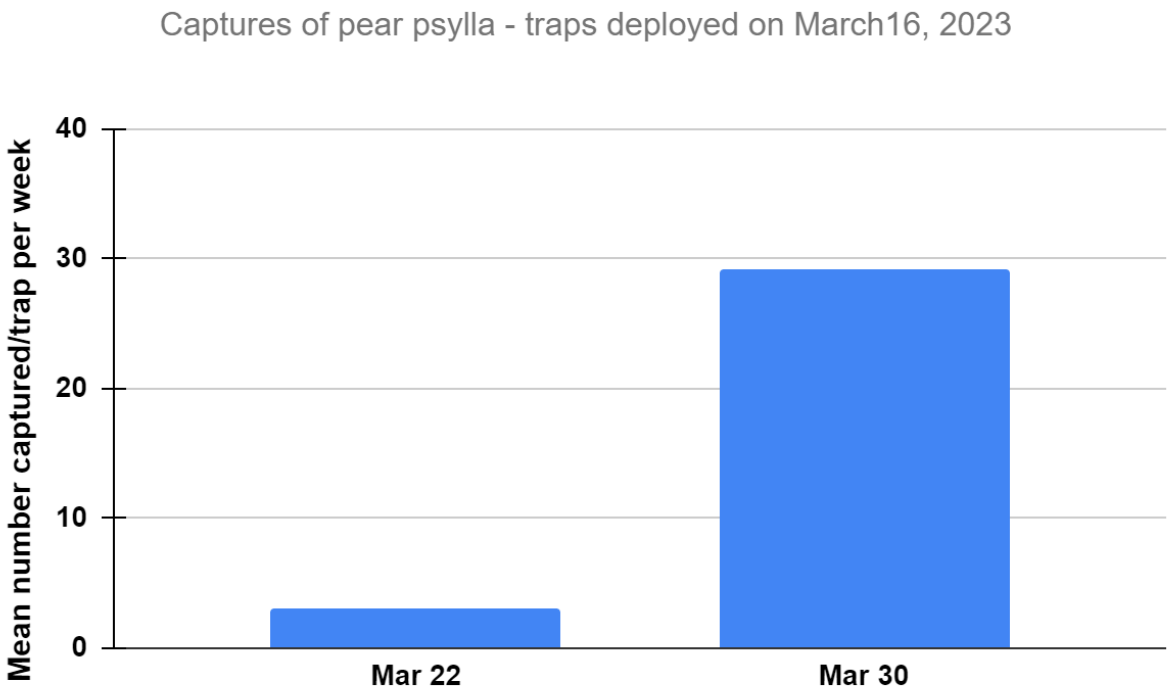
Entomology

Jaime Piñero

Pear psylla.

Life cycle. Pear psylla overwinter as winterform adults in a state of reproductive diapause. They begin laying eggs when pear buds begin to swell. At the UMass Cold Spring Orchard (CSO), pear psylla has been active for over two weeks, and current psylla numbers seem to be high (see below, under 'monitoring'). The first eggs are deposited on the wood, generally at the base of fruit and leaf bud. The offspring of the overwintered generation become summerform adults first appearing in mid-May.

Scouting/monitoring.In the **spring**,look for pear psylla winter-form adults on the first nice sunny day of spring before bud break. Use a beating tray and threshold of an average of 0.2 adults per 10 samples in an acre or less (20 samples in blocks larger than an acre). We are currently conducting a trapping study at CSO comparing captures of pear psylla in white sticky traps baited with a plant volatile versus unbaited traps. Comparatively speaking, high numbers of adults (average of above 30 per trap accumulated in one week) have been found, as shown in the figure below..



Summer treatment threshold for pear psylla is one nymph/three leaves. Examine 25 spurs (one per tree) and terminal shoots per orchard to determine the threshold average. When scouting for eggs, examine new shoots, focusing around the base of bud scales and bud scale scars .

Management. Insecticide resistance in psylla is widely found; therefore careful attention must be paid to the class of insecticides used for control. Psylla management begins with a late dormant or delayed dormant oil application. An adulticide is sometimes mixed with the oil. An early oil spray helps deter egg laying for several weeks. This helps to synchronize the age of the following generations and makes management during the rest of the season a little easier. Surround WP can also be used as a barrier film to reduce egg laying. *The list of materials recommended in the New England Tree Fruit management guide against pear psylla at this time of tree development (swollen bud) can be found* HERE. *Materials that can be be used at the bud burst stage can be found* HERE.

Beginning at bud break use insecticides with good-excellent efficacy against pear psylla. Focus on early season management to keep psylla from becoming a season-long problem. Esteem, an IGR, has to be applied at the white bud stage then again at petal fall. Materials available for the petal fall spray include Verdepryn (a.i. Cyclaniliprole, IRAC group 28) at 11 fl. oz/A (performance is enhanced when used with an effective adjuvant) and Esteem® 35 WP Insect Growth Regulator (a.i. Pyriproxyfen, IRAC group 7C) at 4-5 fl oz/A. Movento (a.i. Spirotetramat, IRAC group 23) at 6-9 fl. oz/A can be applied after petal fall.

Fourteen days after petal fall, Agri-Mek plus oil should give season-long control. Neonics (Admire, Actara, Clutch, Assail), Proclaim, and Portal require two or more applications for adequate control. Centaur and Movento, when applied at the correct timing (nymph hatch), give good control of psylla.

Diligent hand removal of suckers during June and July can greatly reduce psylla populations. A balanced fertilizer program and avoidance of excessive nitrogen greatly reduces flush vegetative growth that attracts psylla. Because water sprouts provide one of the only sources of succulent leaves at this time of the year, this technique can eliminate a large portion of the psylla population.

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.

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.

For pome fruit the recommendation has been 6 gallons of oil per acre based on a dilute volume of 300 gallons per acre: the amount generally considered to cover a mature semi dwarf apple to the point of drip. The use limitations and application rates vary by product and growth stage so be sure to read and adhere to the product label. Mite eggs and overwintering Jan Jose scale can be found on any part of the surface area of the canopy, and can multiply rapidly during the growing season.Opening up canopies with proper pruning can go a long way toward accomplishing good coverage to the point of drip.

Dormant oil can be safely applied up to the pink stages of peach, apple and pear. Delayed dormant applications applied for mite suppression should provide good control of scale and suppress early season aphids.

Tarnished plant bug (TPB).

Perhaps not an insect that has been on your radar in recent years. For the past four 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. This week, about 200 white sticky traps were 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.

Pathology

No disease update this week, stay tuned…

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 (not) "green tip" from last year (4-April, 2022)	McIntosh (not quite yet) "green tip" from this year (3-April, 2023)

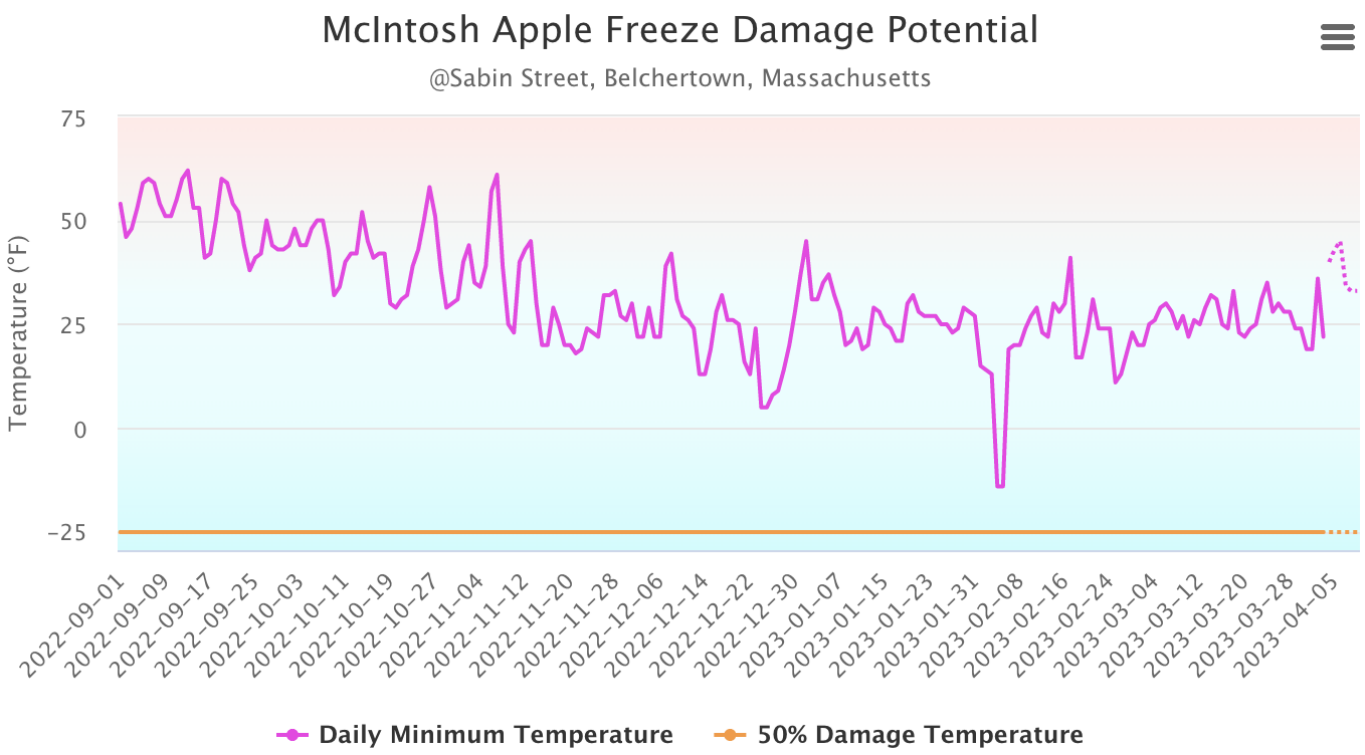
Freeze/frost injury to fruit buds

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

No foreseeable issues with frost/freeze damage to apple buds given the current forecast, but I found this chart (from Climate Smart Farming) interesting. It shows just how steep that temperature drop was on February 4 that hosed our stone fruit crop for 2023. (Note this is for McIntosh apple, where the freeze damage temperature threshold is -25 F.) Thus, see Guest article ‘Managing Peach Blocks with No Crop’ below.



Guest article

Managing Peach Blocks with No Crop

Win Cowgill, Professor Emeritus Rutgers University
Win Enterprises International, LLC

2023 has proven to be a difficult season weather-wise, especially northern peach growing states. 4-February, 2023, minimum cold temperatures reached minus 12 to minus 16 degrees F. at some locations in the Hudson Valley of NY. Similar low temperatures in Massachusetts and Connecticut were observed. (Ed. note. At the Umass Orchard in Belchertown, it dropped to -14 degrees F.) New Hampshire and Vermont had minus 19 to 21 degrees F. Below minus 10 F., most peach buds are gone, zero degrees F. for many of the white flesh peach varieties from California. The lows in New England took out virtually every peach flower bud. (Ed.note: the exception may be southern CT and RI, TBD.)

New Jersey lucked out this winter with most areas in northern NJ on 4-February ranging from 1 to 4 degrees F. at the coldest weather stations in Pittstown, Sussex, Hackettstown.

The focus of this article is how to manage peach blocks that have 100% crop loss.

Pruning - prune hard and well! This is the time to do any corrective pruning to get trees down to their optimal height and shape. Do the fine pruning to eliminate the small shoots that would not have been able to support a good peach this season. The focus of your pruning is to let adequate sunlight into the canopy to form good pencil size fruit shoots this season for next year and to form strong fruit buds on these same shoots this fall. On an open center vase peach tree, 125 pencil size fruit shoots are optimal. Shaded shoots will be weak and not be productive next year. Make sure to remove any and all dead or diseased wood, no matter how small. Dead wood allows disease to enter the scaffolds and trunk.

Summer prune - in a year with no fruit this will be the season to definitely summer prune in mid-June to early July. It will be essential to keep adequate sunlight into the trees to keep fruiting wood healthy. Upright poles should be removed completely. Remember peach buds are formed in September on this season's growth.

Fertility - reduce your nitrogen fertilization by 50%. My goal is to have 50% of my nitrogen applied in a complete fertilizer, based on soil and leaf tests, three weeks prior to anticipated bloom date. The second half of the nitrogen is applied (as nitrogen only) after shuck split once you know you have a crop, on fruiting blocks. ON non-fruiting blocks (zero peaches) no additional nitrogen should be applied this season (after that first N application)! Download Win Cowgill's 2023 peach fertilization guidelines here…

Diseases - we are most concerned about the opportunistic fungi. Most important this spring will be Cytospora canker, also known as Leucostoma or Perennial peach canker. In the northeast, control of this disease is essential if the peach blocks are not to decline prematurely. In North

Jersey we can maintain peach blocks for 20 years plus if we manage this disease. The disease can only enter the peach tree (host) by a wound or dead tissue. Cytosopora invades healthy tissue through an injury (pruning wound, peach borer), or dead tissue (winter injury, dead twigs from shade). Controlling peach borers and Oriental fruit moth is essential. There are no whole tree sprays to control Cytospora canker directly, rather an integrated, whole approach is necessary to control Vytospora.

Cytospora management for a no-crop season…

- Prune to manage light, remove all dead wood, twigs now. Only prune in dry weather. Prune to promote wide branch angles
- Control Peach Borers, Oriental Fruit Moth - use mating disruption. With 20 years of experience on these pests we can control very well with mating disruption.
- Prune as late as possible up till normal bloom time.
- Paint big pruning cuts on any of the scaffold branches with, with Black Tree Paint containing Topsin M-WSB (Thiophanate-methyl)
- Excise (mechanically with a box cutter) cankers on main scaffolds and trunks, back to green tissue, paint the excised cankers with Black Tree Paint containing Topsin WSB (Thiophanate-methyl)
- Essential to paint the trunks/lower scaffolds every fall with the cheapest exterior white latex paint available as a white wash, 50/50 with H2O to prevent winter and southwest injury (Cytospora follows this injury)

Brown rot - with no fruit no sprays are needed unless you have identified brown rot overwintering in the fruiting wood (This is why we remove any mummies after harvest.) If some fruit remains (partial crop) full fungicide schedule is needed.

Rusty spot – aka powdery mildew with no fruit infection of fruit is not an issue, adding sulfur in for peach scab and Rally 40WSP (myclobutanil) 3 oz./acre at first cover timing will help.

Peach scab - it will be important to control this disease even with no fruit in order to limit the buildup of inoculum on the peach twigs. Fungal sporulation begins at pink, according to Dr. Norm Lalancette, Rutgers Extension Fruit Plant Pathologist. I normally use Bravo WS (chlorothalonil) at Petal Fall and Shuck split timings to get a good start on scab control. Normally Captan fungicide applications begin at petal fall and continue through June to prevent scab. He suggests Captan 80 WDG at 2.5 lbs. per acre from petal fall through June. Sulfur is also effective against peach scab, same timings but more applications may be needed if washed off by rainfall.

Bacterial spot - even with no fruit it will be important to limit the buildup of inoculum of bacteria of this disease in the tree. Bacterial spot control can begin with using a full rate of fixed copper for peach tree leaf curl in the fall after leaf drop and again next spring before bud swell. (Ed. note: that peach leaf curl spray is mandatory even if there are no flowers and needs to go on before bud break!) This reduces the bacterial inoculum levels. For controlling bacterial spot on peach fruit, either low rates of copper are used, beginning at petal fall or antibiotics, FireLine

and Mycoshield are the two oxytetracycline products available for stone fruit. With no fruit I would not use the antibiotics, they are short lived, rather I would consider using a low rate of copper as in the NJ program. Dr. Lalancette, Rutgers, worked out a copper program for controlling bacterial spot with very low rates of copper on peaches. Use this NJ program for controlling the foliar phase of bacterial spot this season on blocks with no fruit. His program, 'Copper Bactericides for Peach Bacterial Spot Management' can be found on line at: Copper Bactericides for Peach Bacterial Spot Management — Plant & Pest Advisory

Insects - there are insects that must be controlled this season, even with no fruit:

Peach tree borers - lesser and greater borers are our main concern. With the loss of Lorsban, mating disruption is the best choice. This would be a good year to learn to use mating disruption for peach borer control in stone fruit. I have used the ISOMATE PTB DUAL (Pacific Biocontrol Corporation) mating disruption ties for over 12 years with 100% success in my research orchards. Make sure to use the labeled rate of ties per acre and get them out on time. To minimize peach borer infection, make sure to remove all dead wood, and paint the trunks with whitewash/paint to avoid winter injury to trunks.

Oriental fruit moth (OFM) - will cause flagging on trees and that can provide a site for infection by Cytospora canker. Multiple insecticides are needed for controlling this pest timed with growing degree days. I have used mating disruption ties most effectively on peach and apple for this pest, yes OFM can impact apples too. In apple you can use ISOMATE CM/OFM TT (Pacific Biocontrol) which covers codling moth and OFM, or CIDETRAK CMDA + OFM MESO (Trece). Note there are many brands of mating disruption products available. This pest can also build up from year to year if not controlled.

Note: Make sure to follow all state and federal labels when using any pesticide, the label is the law!

References

1. Compendium of Stone Fruit Diseases, 1995 APS, Pages 28,29
2. http://plant-pest-advisory.rutgers.edu/copper-bactericides-for-peach-bacterial-spot-management/

Win Cowgill is Professor Emeritus from Rutgers University. He retired April 1, 2016 after 38 years of service. He now owns and operates Win Enterprises International, LLC. A Pomological and horticultural consulting company. He continues to do contract research on tree fruit and work with commercial fruit growers. Win can be reached at 908-489-1476, email: wincowgill@mac.com

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 11, 2023. 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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