Healthy Fruit, Vol. 31, No. 13, August 1, 2023

Prepared by the University of Massachusetts Amherst Fruit Team

Jon Clements, Editor

Upcoming meetings

ENY Capital Region Late Summer Orchard Meeting, Wednesday, Aug. 9 from 3:00pm - 5:00pm

J.L. Knight and Son Family Farm, 319 Goode St, Burnt Hills NY

Join us for a late-summer orchard meeting. We will start with a tour through J.L. Knight and Son's new storage and packing area, and owner Jeremy Knight will discuss his experience with Hazel 1-MCP sachets. Cornell researchers and Extension specialists will then give talks on management tasks to be mindful of late in the season as we head into harvest.

Agenda

- 3 – 3:10 pm – DEC Sign in, Welcome, and Introductions – Mike Basedow
- 3:10 – 3:40 – Storage and Packinghouse Tour, Discussion of Hazel Sachets – Jeremy Knight
- 3:40 – 4:00 pm – Late Season Disease Management – Dr. Kerik Cox
- 4:00 – 4:20 pm – Woolly Apple Aphid Management and Mating Disruption – Dr. Monique Rivera
- 4:20 – 4:40 pm – Spotted Wing Drosophila and Spotted Lanternfly Updates – Dr. Anna Wallis
- 4:40 – 4:55pm – Fall Weed Management Reminders – Mike Basedow
- 4:55 – 5:00pm – Final Questions
- 5:00pm – Meeting Adjourn

1.25 DEC credits in 22, 1A, and 10 are available for this meeting. Please register ahead. Contact Mike at 518 410 6823 or mrb254@cornell.edu with any questions on this event.

Registration is free. Sign up Here.

The way I see it

Jon Clements

Hope everyone is enjoying this nice stretch of weather (for a change), we need to get things dried out. Most had circa 10 inches of rain in July which is way too much, apples are quite large for the time of year I suspect. I have seen some sunburn on apples, but not too much (yet). Otherwise, it's the calm before the storm of harvest. I will say despite the freeze in May most have a good crop of apples, although it may be somewhat marked up and/or misshapen. I am revising my damage estimate for apple crop loss to 20% across the board from my previous 30% or so. Still, unfortunately some orchards have zero apples, mostly from the Pioneer Valley westward. People have seen a few peaches. I have attempted to summarize what I gleaned from the latest USDA National Ag Statistics about tree fruit production and value in Massachusetts. It's on the MFGA website but I am going to copy that below. I suspect this is way under-valued, but if I assume 100% stone fruit crop loss and 20% apple crop loss the hit to orchards is 8 million dollars (based on those figures, app. 3.4 million for peaches and 4.6 million for apples at 20% loss) at an absolute minimum. By now I assume you are all aware that losses should be reported to FSA, MDAR, and by filling out the form noted below. If you have not already done so please fill it out (see Clem Clay below)! And the Massachusetts Farm Resiliency Fund? I understand $20 million in emergency relief funds (from State reserves?) to farmers has passed the Massachusetts Senate and is awaiting a vote in the House? (Update: it's been passed.) Although this was brought about by the flooding, I believe tree fruit growers with crop losses are on their minds too. What a summer, eh? I don't have much more right now, apple tree decline issues seem to be an issue I am trying to focus on (see Horticulture), but apple harvest/maturity testing is not far off.

This from Clem Clay, UMass Extension Agriculture Program Director

UMass Extension Freeze Event Impacts Survey Closing August 6!
The freeze events of February 3-4 and May 18, 2023, had significant impacts on agricultural sectors including tree fruits, berries, vegetables, ornamentals, and others. UMass Extension and our partners* hope to generate timely reporting on losses at the state and regional levels. If you produce agricultural crops (including nursery stock) and you experienced crop losses due to the February 3-4 deep freeze and/or the May 18th freeze, please report them by filling out this survey. (Full link: https://umassamherst.co1.qualtrics.com/jfe/form/SV_b2BKrQXOUpV8aNg)
Thanks to those who have contributed over 100 responses so far, reporting losses of over $12.5 million on over 4,400 acres. TO include those who experienced losses but have not filled out the survey yet, the **REVISED SURVEY DEADLINE is AUGUST 6** at midnight.

This freeze survey opened prior to the flood events of July, and those who experience flood losses should report them at MDAR's Flood Survey. Those who experienced losses from both freeze and flood events are asked to fill out both surveys if possible. While gathered separately,

both sets of data will inform the public and decision-makers who are currently considering actions that would provide emergency funds to Massachusetts producers. Some growers may also receive insurance payments or be eligible for low-interest FSA loans or other USDA disaster programs. Producers should also report losses to their local FSA office as soon as the extent of the damage can be assessed--this survey is not intended to take the place of reporting to FSA.

Your data and privacy will be protected. Please see details in the opening page of the survey and on the final page, where you may choose to provide and share contact information if you wish. No crop loss data at the individual farm level will be shared.

*Partners include: USDA Farm Services Agency, USDA Risk Management Agency, MA Department of Agricultural Resources, MA Farm Bureau Federation, MA Food System Collaborative, MA Fruit Growers' Association, New England Vegetable and Berry Growers Association, Community Involved in Sustaining Agriculture (CISA), Southeast MA Agricultural Partnership (SEMAP), and Berkshire Grown.

If you have questions about this survey, please contact cclay@umext.umass.edu.

QR Code:

Massachusetts Fruit Facts

Reprinted from http://massfruitgrowers.org/page3.html

Non-citrus fruits and nuts summary 2017 (USDA, Cornell Mann Library)

APPLES - 3,300 acres
15,000 pounds per acre (375 bushels)
49.6 million lbs
48.5 million lbs. utilized
$0.382 per pound

18.539 million dollars total value
(Discontinued in 2018)

PEACHES - 350 acres (2015)
4.24 tons per acre (8,480 lbs., 212 40 pound boxes)
$2,330 per ton (3.391 million dollars total value)
Discontinued in 2015

2017 Census of Agriculture (USDA, NASS)

FARMS/ACRES
Apples - 443/3,739
Peaches - 216/461
Nectarines - 22/16
Pears - 148/126
Cherries (sweet) - 40/23
Cherries (tart) - 19/6

MARKET VALUE
Fruits (does not include cranberries) & tree nuts, 509 farms, 28.972 million dollars

Entomology

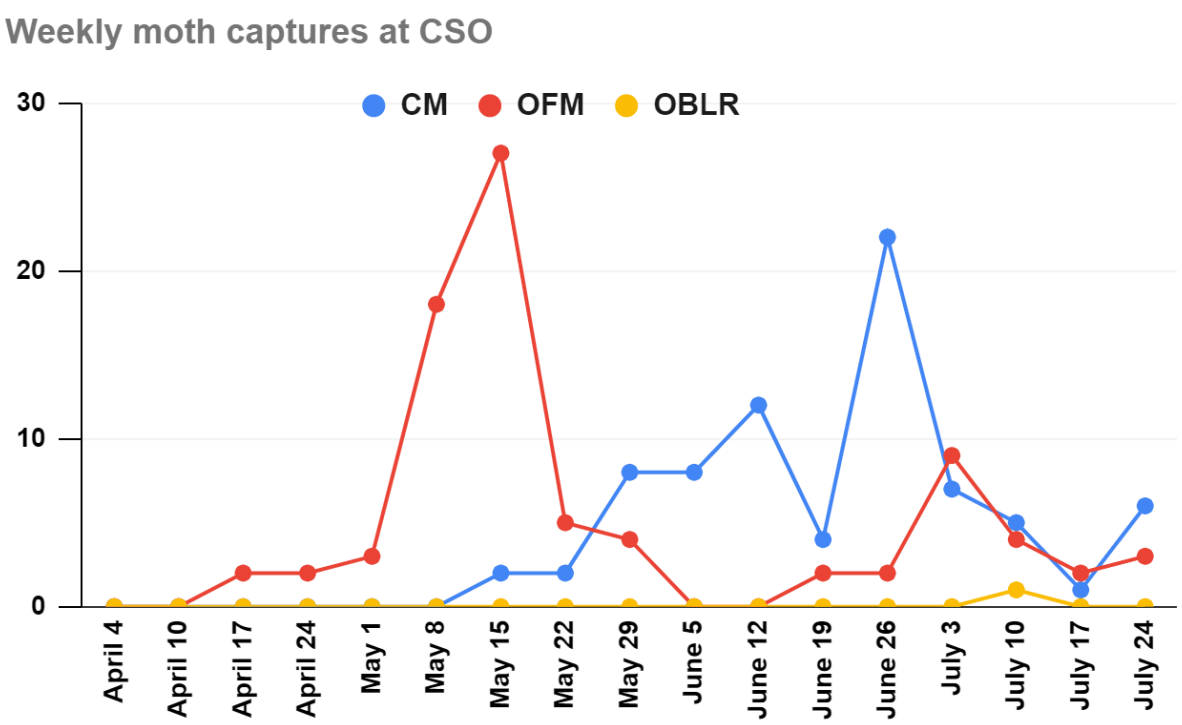
Jaime Piñero, Ajay Giri, Heriberto Godoy-Hernandez, Mateo Rull-Garza, Matthew Bley

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

Trap-capture data at the UMass CSO. **Period: Jul 19 - 24**

Insect	Average captures/trap	Notes
Obliquebanded leafroller	0	1 Pheromone-baited delta trap
Codling moth	6	1 Pheromone-baited delta trap
Oriental fruit moth	3	1 Pheromone-baited delta trap

Codling moth (CM), Oriental fruit moth (OFM), obliquebanded leafrollers (OBLR). OBLR continues to be absent from most orchards. At CSO (see chart below) and at a couple of orchards, CM and OFM seem to be slowly increasing in numbers.



Borers! Monitoring for borers (dogwood, black stem borer) is recommended given that at least two orchards have reported as having borer injury. Look for signs of black stem borer infestation within 1 meter of the ground and use a simple trap to capture females. Cut two to four windows in the body of a plastic 1- or 2-liter bottle that has a cap. Hang it in the orchard upside down at a height of 1.5 to 3 feet, near wooded areas or in low areas where trees are prone to cold injury and where there are trees with signs of infestation.

Bait the trap with ethanol using one of the following three methods:

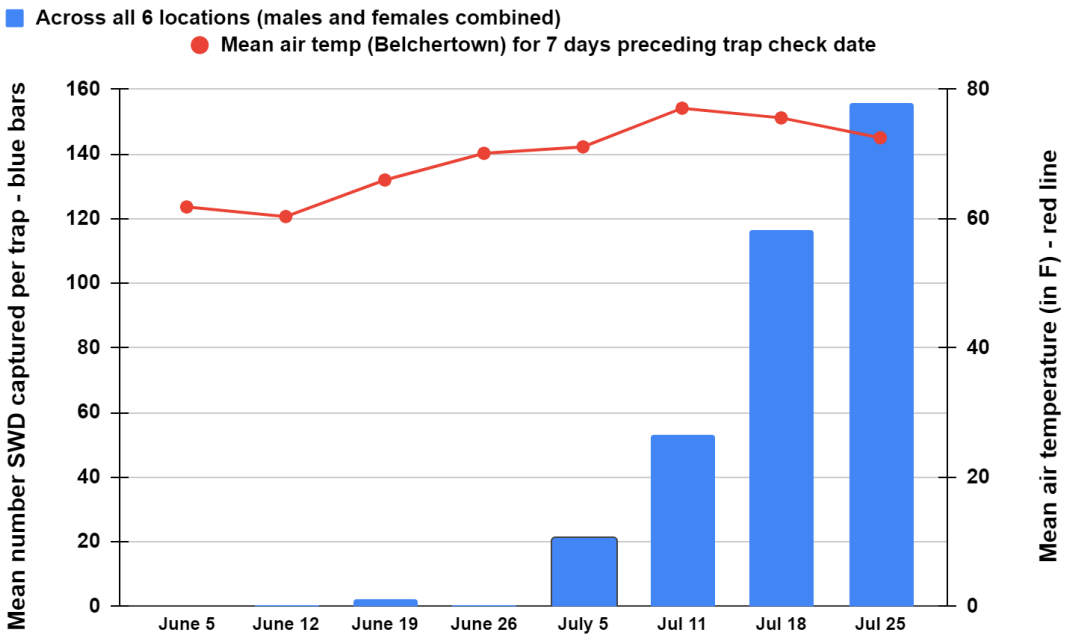
1. Squirt about a quarter cup of ethanol-based hand sanitizer (unscented) into the cap end (bottom) of your trap.
2. With the bottle capped, pour in a cup of cheap vodka through one of the holes made in the side of the trap.
3. Purchase a ready-made ethanol lure to hang inside the trap and fill the bottom of the trap with soapy water. **NOTE**: I WILL BE GETTING SOME LURES SOON; WE CAN DEPLOY ONE AT YOUR FARM IF YOU SUSPECT BORER ACTIVITY. JUST LET ME KNOW.

If using hand sanitizer, traps must be checked daily because the sanitizer will form a crust on the surface after 24 hours. If using vodka or a purchased lure, traps should be checked at least

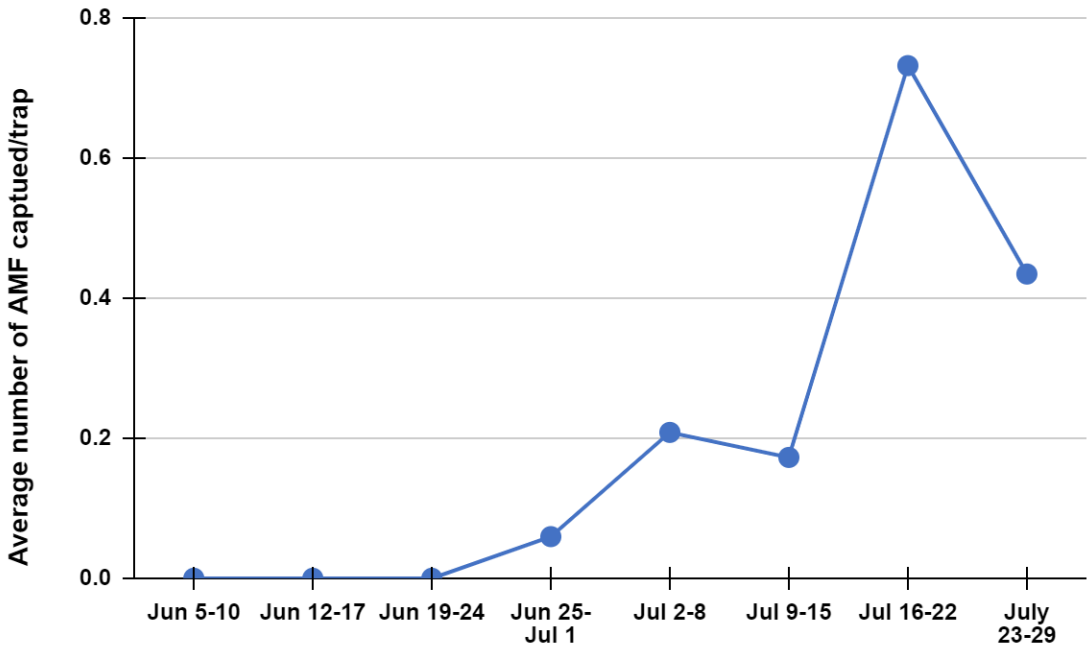
once per week. Beetles are very tiny and require the use of a microscope and training to identify them correctly to species.

Fruit trees sprayed with foliar insecticides during June, July and August are much less likely to be attacked by trunk borers. For trees not receiving foliar insecticide sprays, insecticide (e.g., Assail) application to the trunk at two-week intervals from late June to mid-August will reduce the likelihood of borer attack.

Spotted-wing drosophila (SWD). As of July 25, SWD continues to reproduce at a fast rate. At one farm, one trap had 268 SWD females. Data for the past 7 days continues to be processed.



Apple maggot fly. Overall, AMF captures declined for the past 7 days. However, this may be due to insecticides that may have been been applied in some orchards, or to the rainy weather that prevailed for the past 6-7 days. The chart below shows the average number of AMF captured per sticky sphere across 9 MA orchards.



White apple leafhopper and potato leafhopper. The white apple leafhopper, *Typhlocube pomaria*, is a native pest found in all apple-growing areas. It occurs on apple, peach, cherry, and hawthorn. The potato leafhopper (PLH), *Empoasca fabae* (Harris), is an occasional pest on apple, especially young non-bearing trees. PLH cannot survive the winter in New England. The infestations we observe each year arise from spring migration from southern Gulf Coast States where the insect reproduces throughout the winter. We have not received information about PHL arriving to New England yet.

PLH can cause symptoms similar to the effects of growth regulators, such as excessive branching preceding or beyond the point of extensive feeding. PLH damage is often mistaken for injury caused by herbicides, nutrient deficiency, or over-fertilization.

While the seriousness of PLH is sporadic, it is most damaging from mid-June to mid-August.

PLH monitoring: Nymphs and adults should be assessed on 50–100 randomly selected terminal leaves in an orchard. Young trees should be examined weekly during June and July. Because no action thresholds have been developed yet for PLH in apple, then a tentative threshold will be an average of one PLH (nymph or adult) per leaf. Growers should monitor young apple plantings for PLH and initial signs of damage. Consider treatment of young blocks when PLH first appear, particularly where they have been a problem with them in the past.

PLH control is also important in light of suspected transmission of fire blight. The University of Wisconsin recommends the following: ”in an orchard with a history of fire blight, control is recommended when a single potato leafhopper is identified in the orchard as PLH may vector fire blight. If located near a hay field, plan to scout more frequently around the hay cutting

time as PLH may start moving into apples. And, a few years ago, Peter Jentsch discussed “With incidence of fire blight this season, controlling Potato leafhoppers, a potential vector of the fire blight bacterium, *Erwinia amylovora* (EA), should be a management consideration in young establishing orchards”.

The table below shows the most important characteristics of two leafhopper species.

	White apple leafhopper (*Typhlocube pomaria*)	**Potato leafhopper** (*Empoasca fabae*)
Description	Adults are creamy white, about 3 mm in length and hold their wings over their back when resting. Nymphs are whitish green and are usually found on the undersides of older leaves. *They move forward and backward.* 	Nymphs and adults are yellowish green to pale green. *Nymphs tend to move sideways* and quickly retreat to the opposite side of the leaf when disturbed. 
Life cycle	Second-generation eggs begin to hatch during late July and August. The nymphs feed during August and are fully grown by late August or September. Overwintering eggs are laid during September and early October.	Potato leafhoppers overwinter as adults in southern states and move northward mainly through the action of storm fronts. The potato leafhopper is most damaging from mid-June to mid-August.
Primary host	Apple trees seem to be the only host that WAL overwinters on. During the growing season this insect may also infest peach, plum, cherry and hawthorn.	Apple, grapes, strawberry, potato, many other vegetable crops, beans, alfalfa and approximately 200 other species of plants.
Injury	Adults and nymphs feed on leaves and do not directly attack the fruit, although excrement on the fruit can reduce its quality. Leaves become speckled or mottled with white spots as green tissue is destroyed where leafhoppers suck sap from the leaves. 	PLH feeds near the edges of leaves. Its toxic saliva causes considerably damage in young orchards. If several feeding sites are present on a leaf, the leaf will cup downward. If several leaves on a shoot are affected, shoot growth may be greatly stunted. Feeding may spread fire blight. 
Summer monitoring	Examine 5 trees per block, 20 leaves per tree, and check the undersides of leaves for nymphs. An insecticide treatment is only necessary when a threshold of 2-5 nymphs per leaf is observed in a 100-leaf sample.	Fire blight susceptible varieties and young trees where this species has been a problem in the past should be protected when the first adults appear.

Pathology

Ed. note: to dismiss Diseases this time of the year would not be a good thing, so a couple goodies from the 2022-2023 PENN STATE TREE FRUIT PRODUCTION GUIDE

Fruit Rots
Warm, wet conditions favor bitter rot infections from late June through harvest. It is important to apply fungicides to fruit prior to rain events during this time. Fruit rot symptoms may not manifest until much later in the season. If apples are going to be stored in cold storage for any period of time, growers are encouraged to apply a fungicide, such as Merivon
(0-day PHI) or Luna Sensation (14-day PHI), prior to harvest to help mitigate postharvest rots.

Sooty Blotch and Flyspeck
These diseases are likely to be a problem from this time of the growing season through harvest, especially if rainfall is above normal. New infections can occur as late as September.
Preliminary data has indicated that products containing polyoxin D salt (Oso, Ph-D) manage sooty blotch and flyspeck. Serenade products have shown fruit rot management when used in rotation in a conventional program. Follow the label for recommended rates.

Fungicide recommendations for apples, sixth and seventh covers (and pre-harvest).

CHOOSE one of the following:

FRAC Group	Pesticide	Recommended Rate Per Acre
1	Topsin M WSB[a]	12–16 oz
7 + 11	Luna Sensation[a]	4–5.8 fl oz
7 + 11	Merivon 4.18SC[a]	4–5.5 fl oz
7 + 11	Pristine[a]	14.5–18.5 oz
11	Flint Extra[a]	2.9 fl oz

In combination with one of the following:

FRAC Group	Pesticide	Recommended Rate Per Acre
M3	Ziram 76DF	3 lb
M4	Captan 80WDG[b,c]	2.5–5 lb

OR select one of the following to be applied alone:

FRAC Group	Pesticide	Recommended Rate Per Acre
M3	Ziram 76DF	6 lb
M4	Captan 80WDG[b,c]	5 lb

Horticulture

Jon Clements

Who? M.9's and Geneva above ground portion of rootstock shanks, less so (to none?) on B.9.

What? Large chunks (⅜ inch thick) of bark separating from the cambial layer/heartwood on the exposed portion of rootstock shank. (Not to be confused with simple flaking off of the exterior bark layer.) Result is declining tree vigor, similar as if the trees were partially (or fully?) girdled by voles. Black stem borer may be invading after the fact.

When? Becoming evident this summer although unless you were really looking for the cracking and easy removal of the bark you might not have seen it before, but tree decline also becoming evident this year.

Where? Several orchards at least in Massachusetts, Connecticut, and the lower Hudson Valley. Probably widespread in those regions. No major reports of it in western New York.

Why? “False spring” in January followed by a precipitous temperature drop in early February resulting in freezing of free water in the cambial layer that “pops’ bark away and results in cambial death and large chunks of bark flaking off. (Terence Robinson, personal communication.)

Please report to me if you are seeing something similar in your orchard! (See picture below.) There may be other things going on too, but it may be another weather-related/climate change issue affecting the profitability of our orchards!

Guest article

Matthew Bley

Hello! My name is Matthew Bley and I am a new Extension Educator for the fruit team. What does this mean? Well, I aim to assist Extension research, increase Extension communication, and foster regional relationships with (and among) fruit growers. During my initial months I will become involved in Extension research (planning and execution); help compose and deliver educational material (i.e. Healthy Fruit, Fruit Notes, Fact sheets, presentations); and visit farms across the state to introduce myself, record problems, and figure out how the fruit team can best help you. I am a recent graduate from UMass Amherst with a dual Bachelors degree in Plant and Soil Sciences and Horticultural Science with undergraduate experience in plant pathology

and pest management. As both an avid fan of fruit pies and an alumnus of the Research and Extension Education for Undergraduate (REEU) program, I understand the importance of fruit growers in Massachusetts and the significance of Extension to you. I hope to serve you the best I can. For any comments, conversation, questions, or concern, please email me at mbley@umass.edu.

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)
CCE ENYCHP Tree Fruit Blog

The next Healthy Fruit will be published on or about August 15, 2023. In the meantime, feel free to contact any of the UMass Fruit Team if you have any fruit-related production questions.

Thank you sponsors…

Massachusetts Fruit Growers' Association

Valent USA

ADAMA

Tougas Family Farm

CT GREENHOUSE
Structures & Supplies

WWW.CTGREENHOUSE.COM

CT Greenhouse Structures & Supplies

FARM CREDIT EAST

Farm Credit East

NEW ENGLAND VEGETABLE & BERRY GROWER'S ASSOC.

New England Vegetable & Berry Growers' Association

AGRO·K®
Science-Driven Nutrition℠

Agro-K

Seven Springs Farm Supply