



Healthy Fruit, Vol. 29, No. 11, June 15, 2021

Prepared by the University of Massachusetts Amherst Fruit Team

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Current degree day accumulations

UMass Cold Spring Orchard, Belchertown, MA (Since March 1)	14-June
Base 43 BE (NEWA, since March 1)	1181
Base 50 BE (NEWA, since March 1)	723

Upcoming pest events

Adapted from [Scaffolds Fruit Journal](#)

Coming events	Degree days (Base 43 BE)
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Apple maggot 1st catch	1200-1488
Black stem borer 1st flight subsides	866-1260
Cherry fruit fly 1st catch	722-1289
Codling moth 1st flight subsides	866-1260
Lesser appleworm 1st flight subsides	1002-1538
Lesser peachtree borer flight peak	809-1734
Obliquebanded banded leafroller summer larvae hatch	1038-1460
Peachtree borer flight peak	1085-2014
Redbanded leafroller 2nd flight starts	1196-1547
San Jose scale 1st generation crawlers present	1033-1215

White apple leafhopper 1st generation adults peak	1162-1414
Spotted wing drosophila PEAK ADULT EMERGE 1st GEN*	755**

*uspest.org ** DD's Base 50 from January 1 (772 on June 8 according to uspest.org for Belchertown)

Upcoming meetings

Virtual Honeycrisp Meetup: Crop Load Management

A three-part series of conversations about Honeycrisp.

<http://treefruit.wsu.edu/event/virtual-honeycrisp-meetup/2021-06-03/>

As a follow-up to the 2021 IFTA Virtual Honeycrisp Tours, these meetups will provide an opportunity to review challenges, best practices, and new recommendations for Honeycrisp production.

Led by a panel of scientists and growers across regions involved in the USDA-SCRI Root2Fruit project and leading Honeycrisp producers.

June 17 - Rootstocks (Register here:

https://wsu.zoom.us/webinar/register/WN_h5662X2oRAWhq3lcf7WNA)

July 1 - Nutrient Management (Register here:

https://wsu.zoom.us/webinar/register/WN_PEUvC-sZRHmkeTI7YHgA8Q)

Fruit twilight meeting, TUESDAY, June 15, 2021, 5:30 PM, Outlook Farm, 135 Main Road, Westhampton, MA

Topics during orchard tour will include pear psylla/apple maggot fly/brown marmorated stink bug/spotted wing drosophila management and using PGR sprays to promote return bloom. 1 pesticide recertification credit will be available. A light dinner will be served.

[NH Tree Fruit Virtual Twilight Meeting June 2021](#)

Wed, 06/23/2021

6:00pm - 8:00pm

UNH Extension Field Specialist Jeremy Delisle will host this meeting featuring; Dr. Jaime Piñero, Elizabeth Garofalo and George Hamilton who will discuss seasonal insect, disease and sprayer calibration issues. Please use this link to pre register:

<https://unh.zoom.us/join/9300757XhALoWtRcMZUx50>

Pesticide credits are pending.

Massachusetts Fruit Grower's Association Annual Summer Meeting, July 14, 2021, Clarkdale Fruit Farms, 303 Upper Road, Deerfield, MA

Details coming soon...

The way I see it...

Jon Clements

We are needing to pull together a tree fruit speaking program for the 2021 "Virtual" New England Vegetable & Fruit Conference "Lite" in the coming December. If anyone out there has any ideas about a topic or speaker suggestion, let me know.

Rosy apple aphid (RAA) and powdery mildew (PM) seem to be spreading at the UMass Orchard, hot spots are a bit of a mess. Crew is pruning out powdery mildew infected shoots, recommended, but can't get to all of them. Note to selves, be on top of these problems in April 2022. Oh, you know what else? Woolly apple aphid (WAA) seems a little more prevalent than usual. I suspect the mild winters (aka Climate Change) are contributing to these insect pests that we typically do not see a lot of, but expect we will continue to see more of if Climate Change persists. Found some mite hotspots in Macs too...although it poured rain today, so that will help, but definitely time to start looking for mites.

Apples are still thinning down nicely, hope everyone else is seeing the same. Hard to say when the sweet spot for applying chemical thinners was, bloom, petal fall, or 10 mm? But I strongly suspect the 10 mm spray did most of the work. The other sprays (if you applied them) just greased the wheels. And oh yea, that new chemical thinner ACC (Accede) works pretty good, especially on Mutsu. Comments?

Calcium sprays should be going on with every cover spray now if not more frequently.

<https://ag.umass.edu/fruit/fact-sheets/foliar-calcium-sprays-for-apples>

Be on the lookout for European corn borer (ECB) infestation of newly planted apple shoot tips. Grower sent me this picture, looks an awful lot like ECB? Fire blight? Na, don't think so. Could be nectria? Maybe. Delegate might be the insecticide of choice if you confirm ECB. For more information see [Guest article](#).



European corn borer infestation of young apple tree shoot?

Don't forget to be stripping competitive shoots on young apple trees, now's the time to do it if you are ever going to do it! <http://fruitadvisor.info/tfruit/clements/articles/youngtreetraining.htm>

On the lookout for potato leafhopper (PLH), I have not seen any yet at the UMass Orchard. Yet being the key word here. Young apple trees probably need a prophylactic spray anyways, they will be here and do some damage before you know it! Most insecticide works on PLH. <http://fruitadvisor.info/tfruit/clements/potlh200.html>



Potato leafhopper on apple foliage on 14-June, 2021 at UMass Orchard. Photo by J. Krupa

Oh yea, the Honeycrisp “yellows” looks like it is going to be bad this year, already seeing it, including some “bronzing” of foliage. See pics in [Horticulture](#). Year in and year out the apple orchard looks pretty good until right about now, then all of a sudden, as of all of the above, you have had a S!&% day!!! :-) <https://www.youtube.com/watch?v=3jNIIIGDRkvQ>

One more thing, I hear there is some scab out there and questions about “burning it out?” Dan Cooley said something about “burning it out” [last week in Healthy Fruit](#), but I only know of one sure-fire way to “burn it out!”



How to absolutely/positively “burn out” apple scab

Insects

Jaime Piñero

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

Period: 6.8 - 6.14.2021

Insect	Average captures/trap	Notes - ALL NUMBERS CORRESPOND TO COLD SPRING ORCHARD only
Obliquebanded leafroller	2	Pheromone-baited delta trap (CSO)
Codling moth	0	Pheromone-baited delta trap (CSO)
Oriental fruit moth	1	Pheromone-baited delta trap (CSO)
BMSB	1.8	Pheromone-baited clear sticky card (13 traps across MA)
SWD	0.15	Comparison of fresh and fermented diluted Concord grape juice vs. commercial lure (20 traps in all)

Obliquebanded leafroller (OBLR), codling moth (CM), and Oriental fruit moth (OFM). For the last 7 days, captures of **CM** and **OFM** in pheromone traps at CSO have been low.

OBLR. The BIOFIX at CSO has been set for June 14th. The first spray targeting OBLR is recommended at 360 DD (base 43°F) after the BIOFIX. Sprays targeting the larvae can be applied 10-14 days apart. At this moment the first-generation (summer) adults are flying and females are laying eggs. Newly hatched larvae will move to and feed on tender growing terminals, watersprouts, or developing fruit. As these larvae reach the third instar, they display an increasing propensity to damage fruit. This generation takes almost two months to complete development. The adult flight of the second generation occurs in August, and the subsequent larvae hatch in August and September. The second-generation larvae, which develop in late summer and fall, feed primarily on leaves although they may occasionally damage fruit. For the summer brood larvae the suggested action thresholds are 3% infested terminals.

For **CM**, to avoid the development of insecticide resistance, it is important to remember that products with a different mode of action should be used for the consecutive codling moth generations. The active ingredients in Altacor, Exirel, Voliam, and Besiege belong to the same IRAC Group (diamides), so if any of these products are used for the control of the first CM generation, they **should not** be used for the control of the second or third CM generations.

For a list of materials effective against multiple insect pests, see the table below.

Brown Marmorated Stink Bug (BMSB). Pheromone-baited traps captured 7 BMSB in five locations (out of 13).

Spotted-wing drosophila. SWD activity continues to be low. Only three SWD were captured in one location, and zero SWD in four other locations.

Apple Maggot Fly. Monitoring traps will be deployed in about two weeks.

Mites. Action thresholds for June are 1-2 motile (not eggs) mites per leaf or 30% of leaves with one or more mites. For July: 5 mites per leaf (examine middle aged leaves for motile mites). For August: 7.5 mites per leaf.

Effective miticides: The New England Tree Fruit Management Guide lists several products that provide excellent mite control.

Some miticides (e.g., Zeal, Agri-Mek® SC) have both contact and translaminar properties, meaning that the active ingredient penetrates the leaf tissue and forms a reservoir of active ingredient within the leaf.

Always read the labels as some products (e.g., Agri-Mek® SC) need to be mixed with a penetrating non-ionic surfactant, such as horticultural spray oil used at 0.25% to be effective. For Agri-Mek SC, do not use binder or sticker type adjuvants because these type adjuvants may reduce translaminar movement of the active ingredient into the plant which could result in reduced performance.

Several miticides are limited to 1 application per season to delay pesticide resistance developing.

SPRAY TABLE FOR APPLE INSECT PESTS (SUMMER)

SPRAY TABLE FOR APPLE INSECT PESTS (SUMMER). Source: New England Tree Fruit Management Guide HIGH AND MODERATE EFFECTIVENESS										
	Active ingredient	IRAC	Apple maggot	Stink bugs	Codling moth	Oriental fruit moth	Obliquebanded leafroller	San Jose scale	Woolly apple aphid	Potato leafhopper
Intrepid 2F (IGR)	Methoxyfenozide	18			M	M	H			
Dipel DF (OMRI)	B.t.	11A			M	M	H			
Assail 30SG	Acetamiprid	4A	H	M	H	H		M	M	H
Delegate 25WG	Spinetoram	7			H	H	H			
ALTACOR 35WDG	Chlorantraniliprole	28			H	H	H			
Avaunt 30WDG	Indoxacarb	22	M		M	M				H
Exirel	Cyantraniprole	28	M		H	H	H			H
Imidan 70W	Phosmet	1B	H		H	H		M		
Movento 240SC	Spirotetramat	23						H	H	
Voliam Flexi WDG	Thiamethoxam + chlorantraniliprole	28 + 4A		H	H	H	H			H
Belt 4SC	Flubendiamide	28			H	H	H			
Danitol 2.4 EC	Fenpropathrin	3		M	H					
Actara 25WDG	Thiamethoxam	4A		M						H
Entrust SC (OMRI)	Spinosad	5			M	M				
Admire PRO 4.6SC	Imidacloprid	4A					H	M	M	H
Verdepryn 100SL	Cyflumetofenprole	28								
Transform WG	Sulfoxaflor	4C						Suppression only		

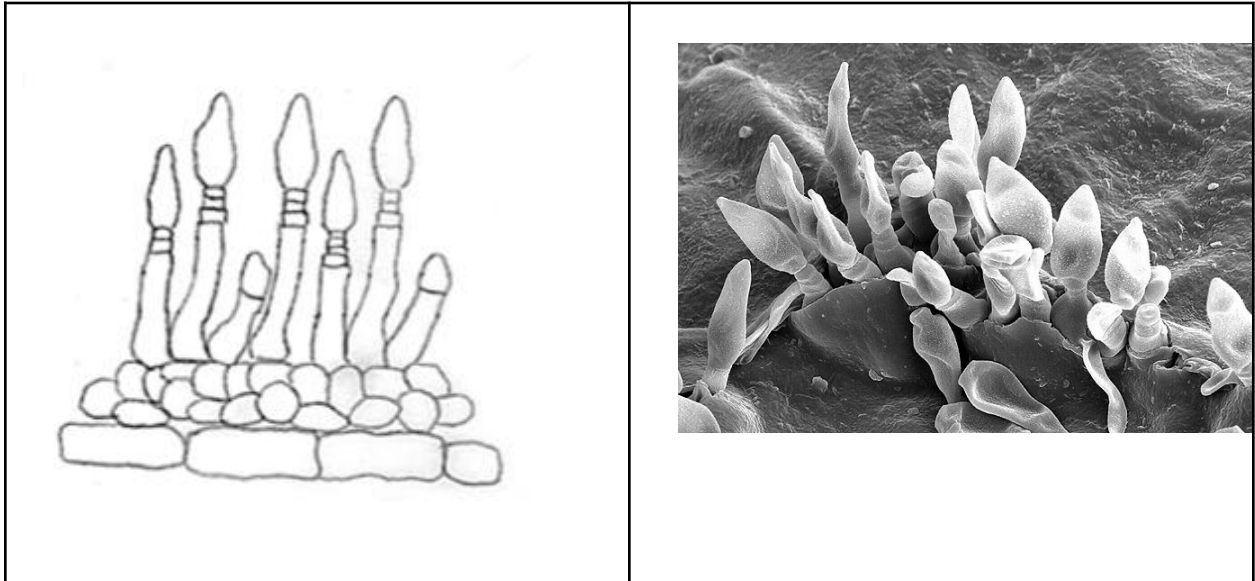
This list is not exhaustive for every active ingredient or labeled product. No endorsement of products mentioned is intended, nor is criticism implied of products not mentioned.

Diseases

[Liz Garofalo](#) and Dan Cooley

Last week we talked about eradicating scab, primarily using captan. We ended with the question, how do you know if you've been successful? Jon showed you one way to burn out scab and be sure you got it. The collateral damage can be heavy though! It's difficult to be sure that scab infections are no longer making new conidia, which can cause new infections.

Once an infection starts, it grows for 9 to 17 days without producing any symptoms. Then the fungus breaks through the surface of apple tissue, and starts making a lot of spores, conidia.



The pictures show a drawing of these conidia, and a scanning electron microscope image.

Brand new infections make the most conidia, and so present the most risk of new infections in the orchard. It's important to spray fungicides as soon as they're noticed to both slow spore production and protect the uninfected parts of the plant, particularly the new fruit.

The first two pictures below show "sheet scab", multiple infections on a leaf. These are new infections, probably about 2 to 3 weeks old, and visible for only a few days. The light, fuzzy texture comes from the production of thousands of conidia. The next picture below shows a single infection in the upper left on one leaf. Again, this is the stage when the fungus is producing a lot of new inoculum.



As the infections age, they get darker, turning brown then black. In some places, such as New Zealand, the common name for the disease is black spot rather than scab. The leaf may pucker, and turn yellow around the infection site. This doesn't mean that the lesions aren't producing spores, only that they're producing fewer spores. And infections aren't limited to the tops of leaves. They can be hidden on the underside.



One indication that attempts to 'burn out' or eradicate scab have succeeded is that the infections stop looking fuzzy. The leaf surface looks smooth, if damaged, and areas may be yellow, brown or black. In the two pictures below, the lower one shows eradicated scab lesions typical of using a DMI (FRAC 3) after the infection has started, but before spore production starts. In fact, FRAC 3 fungicides will stop the fungus from growing but not kill it. These infections can start to grow again in fallen leaves, producing new inoculum the next year.



If there are active scab lesions in an orchard, the goal should be to minimize fruit infections.



Keeping fungicide protection on the fruit can often get the fruit through undamaged even though scab remains active in an orchard. Then the infected leaves can be chopped and sprayed with urea before the start of the next season.

Notes from the field

[Liz Garofalo](#)

No Notes from the field this week...

Horticulture

Jon Clements, Editor

I have nothing other than what I espoused in [The way I see it](#) above. But I would say the most important thing is to get out there and look at young/newly planted apple trees. Training and pruning? Are they supported? Irrigation in and running? How are you monitoring soil moisture? Another shot of calcium nitrate before July 1? PLH control?

I mentioned above the Honeycrisp “yellows” (<http://fruitadvisor.info/fruit/clements/honeycrisp.html>) which seem to be coming on strong this year. It’s a rather nebulous physiological issue, not much you can do about it except maintaining tree nutrition and health can’t hurt. It also seems worse on lightly cropped Honeycrisp, which is kind of counterintuitive but true. Getting your Honeycrisp into annual cropping mode with

precision pruning, NAA sprays beginning at bloom, and/or ethephon sprays after the danger of fruit thinning is past is good practice.



Honeycrisp “yellows” on 14-June, 2021 at UMass Orchard

Guest article

Newly Planted Apple Insect Pest Management: European Corn Borer

Excerpted from THE JENTSCH LAB <https://blogs.cornell.edu/jentsch/>, June 12, 2021.

Drought conditions will often drive insect pests like the mite complex, stink bug and European corn borer (ECB) *Ostrinia nubilalis* into apple plantings. For ECB, succulent new growth provides ideal resources for developing larva. Egg laying of ECB has already begun. Hatch and management should begin at 800 DD base 50F. This is predicted over the next two weeks.

European corn borer (bivoltine) development estimated using a modified base 50F degree day calculation.

Development Stage	Accumulated Degree Days
<i>First Generation</i>	
First spring moths	374
First eggs	450
Peak spring moths	631
First generation treatment period	800-1000
<i>Second Generation</i>	
First summer moths	1400
First eggs	1450
First egg hatch	1550
Peak summer moths	1733
Second generation treatment period	1550-2100

When it comes to apple production we typically don't concern ourselves with the likes of European corn borer. However, this insect, especially in years of drought can cause considerable damage to newly planted trees. Populations of ECB began in relatively low numbers throughout NY State this season but will likely continue to climb over the next few weeks. In new plantings we have seen ECB begin to burrow into the growing shoots in mid-late June so scouting should begin in newly planted trees this weekend.

Female ECB moths have begun laying egg masses on the underside of apple leaves with larva hatch observed. If ECB is present, larval feeding should become evident in newly developing apple shoots over the next few days. You will see brown frass and ooze where the leaf petiole and stem join. It is likely that fruit trees with ECB injury will have higher damage levels along the perimeter, especially where tall grasses and woody stemmed broad leaf weeds are present.

The Eastern strain of European corn borer (New York / Eastern Z-strain) has a wide host range, attacking robust herbaceous plants with a stem large enough for the larvae to enter. I have not heard reports of the new hybrid strain of ECB attacking apple. As the pheromone for this strain is under field investigation, I do not believe that it is yet commercially available.

Some of the common weeds infested include barnyardgrass, Echinochoa crus-galli; beggarticks, Bidens spp.; cocklebur, Xanthium spp.; dock, Rumex spp.; jimsonweed, Datura

spp.; panic grass, *Panicum* spp.; pigweed, *Amaranthus* spp.; smartweed, *Polygonum* spp.; and others.

There are reports that severe weather influences European corn borer survival. Heavy precipitation during egg hatch is sometimes an important mortality factor. Low humidity, low nighttime temperatures, and heavy rain and wind are detrimental to moth survival and oviposition. However, like most insect pests, they seem to thrive during unlikely weather scenarios in years past. Drought seems to favor development and generational success.

Typical examples of ECB feeding on apple is similar to that of Oriental Fruit Moth on apple with frass and entry under petiole or side of new shoots, producing terminal bud decline, flagging. In many cases, the loss of the central leader will occur, significantly reducing tree growth and fruiting establishment.

From prior observations, the larva reside within the upper most part of the shoot, 8-10 inches from the tip. Frass is visible at the base of the petiole and leaves are browning from the tip back toward the stem of infected stem portions (see images below).

Trap sites across NYS show very low early season adult flight. Later into the season we are now finding increasing ECB adults in pheromone traps across the state that will likely require intensive management on sweet corn.

Newly planted apple should be scouted frequently, especially if drought conditions continue during the latter part of the summer.

Irrigated apple become very attractive to ECB adults as they move out from low moisture weed hosts along orchard borders. Pheromone trap placement for ECB in newly established orchards should be along the edge where known weed host plants reside.

Applications of most insecticides will do little to manage the larva within the tree. However, management at the early onset of hatch will reduce further infestations in blocks that already show the beginnings of ECB boring and larval feeding.

Pyrethroids become less effective to ECB populations as temperatures increase, as this class of insecticides is more readily detoxified by insects when temperatures exceed 70F.

In non-fruiting and newly planted apple Delegate 25WG is labeled for use on apple in NY and is very effective at controlling ECB on newly planted trees. Delegate and generally the spinosad class of insecticides are not as negatively affected by increased temperature. Bt formulations are also labeled for ECB, and may require tight intervals for acceptable management during periods of intense sunlight and heavy weathering. IRAC 28 insecticides (Altacor, Exirel, Verdepryn) applied for CM and OBLR will also effectively manage corn borer in fruiting trees.

Insecticides used against codling moth at this time will likely impact ECB, however, newly planted trees that have no marketable crop are often ignored as mature trees with fruit near harvest, and concerns over CM and apple maggot infestations to the crop distract growers from attending to new plantings. Management of ECB to reduce shoot injury to newly planted trees will require a specific management plan and no less than bi-weekly applications of effective insecticides to maintain terminal shoot growth during ECB hatch.

The Sweet Corn Pheromone Trap Network Report has regional trap counts for European Corn Borer and degree day accumulations.

Facebook Me



Jerry Frecon

1h · 👤



Peplowski Fruit Farm

June 11 at 1:34 AM · 🌐

Yes, we have started to pick our first variety of peaches!!! Let summer begin!!!

👍 1

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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 June 22, 2021. 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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