



Healthy Fruit, Vol. 30, No. 11, June 14, 2022

Prepared by the University of Massachusetts Amherst Fruit Team

Jon Clements, Editor

Current degree day (DD) accumulations

UMass Cold Spring Orchard, Belchertown, MA (NEWA, since January 1)	13-June
Base 43 BE	1138
Base 50 BE	665

Upcoming pest events

Pest	DD's Base 43 F. BE	Recommendation
Codling moth 1st flight subsides	866-1260	Time insecticide application at egg hatch and/or young larvae before they tunnel into fruit
Lesser appleworm 1st flight subsides	1002-1538	None
Lesser peachtree borer 1st flight peak	809-1734	Mating disruption should be in place; apply insecticides where a problem
Obliquebanded leafroller 1st flight peak	851-1214	Monitor and set first catch biofix with pheromone traps
Plum curculio still active until 308 DD's Base 50 F. from petal fall	Accumulated degree days (base 50°F BE) petal fall (May 18)	Yay! The risk of PC injury is over as long as you applied an

	through June 13: 404	insecticide in the last week
Pear psylla 2nd brood hatch	967-1185	Season-long insecticide control of pear psylla may be necessary where a problem
San Jose scale 1st generation crawlers present	1033-1215	Monitor for crawlers using black electrical tape with sticky
Spotted tentiform leafminer 2nd flight starts	980-1155	No action necessary at this time; begin monitoring for sap feeding mines in a week or two

Upcoming meetings

2022 Virtual Orchard Meetup Series - Orchard Efficiency: Labor & Technology. June 16, and 30; July 14. For more information: https://rvpadmin.cce.cornell.edu/pdf/event_new/pdf96.pdf

Tuesday, June 14, 2022, 5:30 PM – UMass Fruit Team Twilight Meeting, Carlson Orchards, 115 Oak Hill Road, Harvard, MA. 1 pesticide recertification credit available @ \$20 per person. Light supper will be served.

Thursday, July 14, 2022 – Annual Summer Meeting of the Massachusetts Fruit Growers' Association, UMass Orchard, Belchertown, MA. Details TBD.

The way I see it

Jon Clements

“June drop.” What exactly is June drop? Is it June drop if it's June and apples are falling off the tree? Why are they falling off the tree? Is it June drop if no chemical thinners were applied because apples are falling off the tree and it is June and the tree is carbohydrate stressed? Is it June drop if apples are falling off the tree because chemical thinners were applied in mid-May. (Then isn't it actually belated “May drop?”) Does anyone leave a control, non-chemical thinned vs. chemical thinned to see if “June drop” is actually occurring. I suppose I should do some research and see if there is a reference to and definition of “June drop.” Oh, BTW, we are seeing “June drop.” Sorry, I had to get this off my chest... :-)



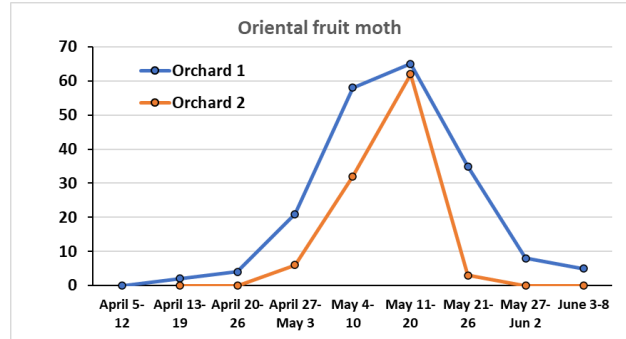
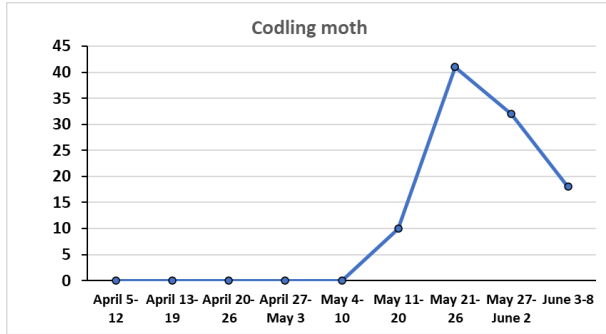
“June drop?” or not?

Entomology

Jaime Pinero

Codling moth (CM) and Oriental fruit moth (OFM). For both moth pests, the first flights are over.

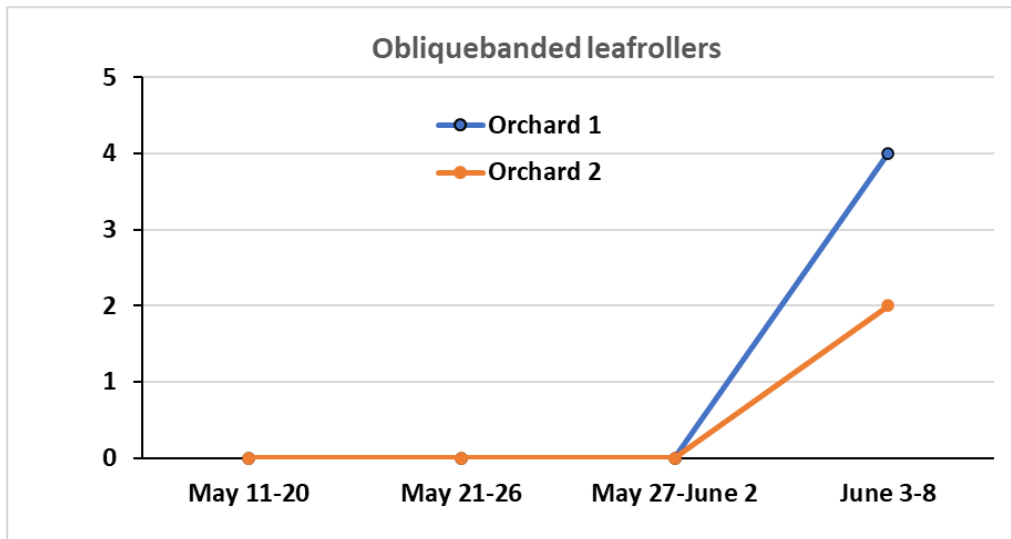
Summer thresholds: For OFM in apple, >10 OFM per trap per week for the 2nd to 4th flights. For CM, if >5 moths are caught per trap per week using standard lures, there can be problems in fruit from future generations. High trap counts are a warning to prepare for an application in 5-7 days. If trap counts continue to exceed threshold throughout the season, maintain insecticide coverage on a 2-week interval.



Obliquebanded leafroller (OBLR). OBLR became active on the week of June 9th in two out of six monitored orchards. Peak flight usually occurs within two weeks after the first adult is captured. No control measures are recommended at this time because eggs have not yet begun to hatch. It is also too early to sample growing terminals to estimate larval populations.

Monitoring: Using the date of first OBLR capture as a biofix, use degree-day model to determine when OBLR eggs are hatching and most susceptible to insecticide. Apply insecticide starting at 350 DD (base 43F) after BIOFIX (first day of sustained captures). May need 2-3 sprays 10-14 days apart.

Thinning of fruit and pruning water sprouts in midsummer is helpful in reducing fruit damage.

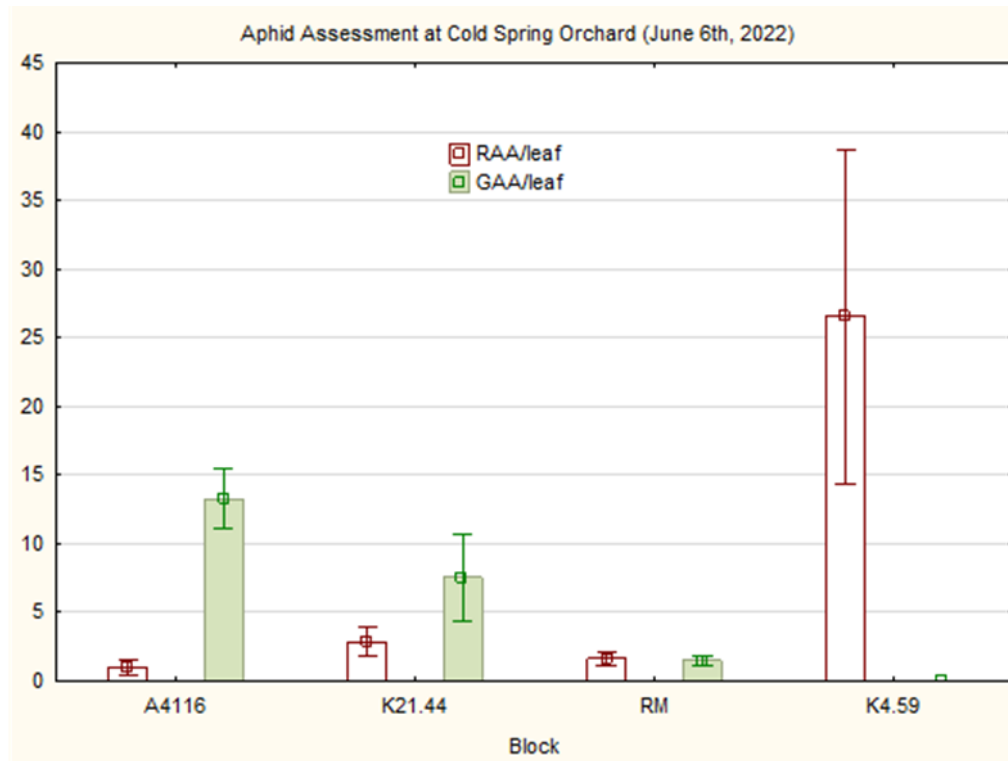


Aphids. An assessment conducted at CSO on June 6th, 2022, in six blocks revealed the presence of green apple aphid (GAA) in some blocks. We are presenting results from four blocks because we continue to count aphids from the other two blocks.

Rosy apple aphid (RAA) was abundant at CSO in 2021. But RAA numbers are very low at this moment, except for one block (K4.59, see figure below) although RAA numbers are relatively

low. Because in that block some fruit received fresh injury by plum curculio (at the time of sampling), then the decision was made to apply a neonicotinoid to block K4.59 only. That insecticide spray took place a couple of days after we conducted the assessment.

In two apple blocks, the number of GAA exceeded that of RAA, and in one block both aphid species were found in similarly low numbers. Natural enemies were found in low numbers.



GAA monitoring should begin in June by checking at least 10 terminals and water sprouts per tree and 10 trees per block. Treatment threshold is 50% of vegetative terminals infested AND less than 20% of infested terminals with biocontrol agents present OR 10% of fruit with honeydew or aphids.

RAA: The presence of more than one RAA-infested cluster per tree justifies an insecticide treatment to prevent fruit injury.



Spotted-wing drosophila. The first SWD of the season was captured on May 31st by a trap baited with diluted Concord grape juice with 2% table salt added. Traps baited with Trece and Scentry lures have not captured any SWD yet.

The table below shows SWD captures as of June 1st, across 6 locations in MA. It shows that from mid-May to early-June diluted concord grape juice was much more selective, as most of the times very few non-targets were captured in traps baited with concord grape juice when compared to the two commercial lures.

Treatment	SWD	non-targets
1 week-old Concord grape juice with 2% Salt	1	12
Scentry	0	1,616
Trécé	0	376





White apple leafhopper (ALH) and potato leafhopper (PLH). 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 in 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.

PLH monitoring: Nymphs and adults should be assessed on 50–100 randomly selected terminal leaves in an orchard. Young trees should be examined weekly through 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.

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

	White apple leafhopper (<i>Typhlocyba pomaria</i>)	Potato leafhopper (<i>Empoasca fabae</i>)
Description	<p>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. <i>They move forward and backward.</i></p> 	<p>Nymphs and adults are yellowish green to pale green. <i>Nymphs tend to move sideways and quickly retreat to the opposite side of the leaf when disturbed.</i></p> 
Life cycle	<p>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.</p>	<p>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.</p>
Primary host	<p>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.</p>	<p>Apple, grapes, strawberry, potato, many other vegetable crops, beans, alfalfa and approximately 200 other species of plants.</p>
Injury	<p>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.</p> 	<p>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.</p> 
Summer monitoring	<p>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.</p>	<p>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.</p>

Apple maggot fly. Unbaited sticky spheres will be deployed in blocks that have multi-cultivar grafted trees early next week.

Summer insecticide spray table. Source: New England Tree Fruit Management Guide. *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.*

SPRAY TABLE FOR APPLE INSECT PESTS (SUMMER). Source: [New England Tree Fruit Management Guide](#) **HIGH - 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	Cyclaniliprole	28								
Spear-Lep	GS-OMEGA/ KAPPA-HXTX-HV1A (peptide)	32			?	?	?			

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Pathology

Dan Cooley

No pathology from Dan today, however, see I (JC) just got this in from Kari Peter regarding bitter rot (and other rots) management.

Peter, Kari Anne. 10:38 AM (1 hour ago) to me

Using Captan 3 lb/A regularly works great. If disease pressure is high (frequent rain events, warm), then I'd include one of the following with the Captan:

- Aprovia (FRAC 7; 30 day PHI)
- Omega (FRAC 29; 28 day PHI; Use at 13.8 fl oz/A)
- Flint Extra (FRAC 11; 14 day PHI)
- Luna Sensation (FRAC 7 + 11; 14 day PHI)
- Merivon (FRAC 7 + 11; 0 day PHI) → Preferably used for the last cover spray of the season
- Fontelis (FRAC 7; 28 day PHI; Use at 20 fl oz/A)

Fungicide has to go on BEFORE the infection event (and growers need to be cognizant of how old their fungicide spray is when the infection event occurs...the more recent application, the better...if it's 2 weeks old, it might be a stretch). Growers waiting until after the rain has fallen will be in for a rude awakening. The fungicides work when it's on the fruit and the germinating spore while it's doing its thing before it causes penetration into the fruit skin. They can't treat this

like apple scab thinking they can put something on after the rain and think there is kick-back for the fungicide. The fungus goes dormant once it penetrates the tissue and it's then not susceptible to fungicides.

Horticulture

Jon Clements

I am going to repeat the most recent advice on return bloom sprays, second-hand via Glen Koehler's Maine Tree Fruit Newsletter (June 13, 2022, <https://extension.umaine.edu/ipm/apple/maine-tree-fruit-newsletter/>) but originating out of the Cornell recommendations (Terence Robinson and Mario Miranda Sazo). So get the Fruitone/Omaxa/Refine out, and the Ethephon out, mark the containers with 4 oz (I'd use 3) and 0.75 pt. (12 oz.) respectively. Add them to your cover sprays per the timing and number of times below. Done.

Return bloom sprays

- For mildly biennial varieties, apply four sprays of Ethrel (1 pt/A) or NAA (4 oz/A) beginning when fruits are 25 mm in diameter and on a 10 day interval
- For strongly biennial varieties, apply four sprays of Ethrel or NAA (4 oz/A) beginning when fruits are 16 mm in diameter and on a 10 day interval. Apply the first spray of Ethrel at the low rate of 0.5 pt/A, followed by three sprays at the rate of 1 pt/A. Continue with two additional applications of NAA at 4 oz/A.
- Do not spray if temperatures will be over 80F on the day of spray or the following 2 days. Closely monitor the weather forecast.
- It is OK to mix with CaCl₂ or other calcium formulations to reduce bitter pit.
- All Honeycrisp and Fuji should receive these Ethephon sprays even those with a light crop. (The low dose and avoiding high temperatures will result in no thinning even on light cropping trees.)

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>

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[The Jentsch Lab](#) (Peter Jentsch, Poma Tech)

[Acimovic Lab](#) (Srdjan Acimovic at Virginia Tech)

[Tree Fruit Horticulture Updates](#) (Sherif Sherif at Virginia Tech)

App store: Malusim (iOS and [Google Play](#)); Fruit Growth Model (iOS); Orchard Tools (iOS); MyIPM (iOS and [Google Play](#)); Eco Fruit/Apple App (iOS and [Google Play](#)) Note: for iOS apps search the App Store on your iOS device.

The next Healthy Fruit will be published on or about June 21, 2022. 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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