



Healthy Fruit, Vol. 30, No. 6, May 10, 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)	9-May
Base 43 BE	369
Base 50 BE	136






Upcoming pest events

Pest	DD's Base 43 F. BE	Recommendation
Codling moth 1st catch	395-562	Hang pheromone monitoring traps soon
European red mite egg hatch complete	368-470	Begin monitoring for mites on foliage; apple miticide when warranted
Green fruitworm flight subsides	258-496	Monitor for feeding larvae; use an effective petal fall insecticide
Lesser appleworm 1st catch	276-564	Hang pheromone monitoring traps
Lesser appleworm 1st flight peak	364-775	Hang pheromone monitoring traps
Oriental fruit moth 1st flight peak	330-530	Hang pheromone monitoring

		traps and/or mating disruption
Predator mites observed	211-402	Avoid broad spectrum insecticides
Spotted tentiform leafminer 1st flight peak	265-403	Hang pheromone/red sticky card monitoring traps where STLM a problem
White apple leafhopper nymphs on apple	302-560	NA
McIntosh bloom	344-414	Do not apply insecticides during bloom

Current bud stages

Current bud stages. 9-May, 2022, UMass Cold Spring Orchard, Belchertown, MA (more current bud stages [here](#))

				
McIntosh apple <i>King bloom +</i>	Honeycrisp apple <i>Early king bloom</i>	Gala apple <i>Pink +</i>	Crispie pear <i>Bloom +</i>	Redhaven peach <i>Bloom +</i>

Farewell announcement

It is with mixed feelings I share with you today my departure from the UMass Extension Fruit Team. I have been offered, and accepted, a position as the Marketing and Outreach Manager at Red Tomato and in support of the Eco Apple program. It has been a great pleasure to have had the opportunity to work with you all over these last years and I am deeply grateful for everything you have taught me.

I have always said, apple folks are the best folks; I look forward to continuing to work with and for you all in the future. And please remember, I am never more than an email away. You will always be able to reach me at hawkeye@fullkitchenfarm.org. I'll see you in the orchard! -Liz

Upcoming meetings

Every Tuesday at noon - UMass Fruit Team Open Office Hour
<https://umass-amherst.zoom.us/j/97190816203> Bring your own lunch.

Thursday, May 12, 2022, 12:00 PM - UMass Fruit Team Grape Noon Zoom with Dr. Elsa Petit (Note this will be a grape-centric meeting, we don't expect to discuss tree fruit topics.)

Wednesday, May 18, 2022, 5:30 PM - From Heather Faubert: "We will have a true Twilight Meeting on May 18 at 5:30-8:00 at Spencer Morris's apple orchard at 71 Long Lane, Warren, RI. Spencer is growing primarily cider varieties for his cidery, [Sowam Cider Works Company](#), in downtown Warren. NOTE: The meeting is at the orchard on Long Lane, not at the Cider Works Company. We will not be serving food, and you need to bring your own chair if you want to sit. Feel free to bring a bag lunch for yourself. Two hours of pesticide recertification credits are available."

Wednesday, June 1, 2022, 4:30 PM – UMass Fruit Team Twilight Meeting, Apex Orchards, 154 Peckville Road, Shelburne Falls, MA. More details forthcoming...

The way I see it

Jon Clements

Bloom is here, finally. Peace and quiet right? Bees were working yesterday (Monday) despite the ongoing stiff "breeze." The weather looks favorable if not very good to get the job done through the weekend, and the wind will even be backing off! Fire blight risk should be on everyone's mind by the end of the week, just remember it takes wetting to cause an infection. Even slight wetting such as heavy dew. Strep should be on hand. My prediction: you will be applying strep this weekend. As well as some NAA for that bloom and/or petal fall thinning application to grease the wheels for further thinning activity and annual cropping. This weather is favorable for a caustic bloom thinner if that's the way you want to go. But ATS and lime sulfur availability is pretty limited, so I don't see much of that going on, hence my recommendation for a bloom application of NAA (Amid-Thin W, Fruitone-L, etc.). That's the way I see it for now, enjoy the nice weather while it lasts...

Entomology

Jaime Pinero

The first **plum curculio** of the growing season was captured by an odor-baited black pyramid trap on 5 May 2022, at 248 DD base 43. On 9 May, 3 PCs were found on apple trees in two blocks at the UMass Cold Spring Orchard.

Codling moth (CM) and Oriental fruit moth (OFM) update. OFM captures continue to be low in most monitored orchards, except for one organic orchard where OFM numbers are increasing

rapidly. No CM have been captured yet at any monitored location - although one grower reported four CM in one trap two days ago. In 2021, the first CM of the season was captured at CSO on May 20th.

CM and OFM monitoring and management. Don't forget to use pheromone traps to monitor adult CM and OFM populations in your orchard. The traps are very important for setting biofix, determining the seasonality of adult flight, and they can estimate the relative adult population density in the immediate area.

If you are using BIOFIX, then most conventional insecticides against CM can be applied at 250DD base 50, which include the pyrethroid class, Avaunt, Delegate.

OFM suggested trap thresholds. **APPLE:** If >30 OFM per trap per week for the first flight, and >10 OFM per week for the 2nd -4th flights, there is a potentially treatable population. **PEACH:** If there are >15 OFM per trap per week for the first flight, there could be potential fruit infestation problems if control steps are not taken. The suggested trap threshold for OFM in peaches for 2nd -4th flight is 10 OFM per trap per week.

CM suggested trap thresholds. **APPLE only:** If >5 CM are caught per trap, there can be problems in future generations. High trap counts are a warning to prepare for an application within the next 5-7 days. You will need to maintain insecticide coverage on a 2-week interval IF trap counts continue to exceed the threshold.

Insecticide options. The choice of products is quite varied, depending on the stage of CM you wish to target. Products that possess ovicidal activity (i.e., affecting the eggs) include Intrepid* (a.i. Methoxyfenozide) or Rimon* (a.i. Novaluron). Insecticides that target the hatching larvae (i.e., 230–250 DD after biofix base 50) are as follows: diamides (e.g., Altacor, Exirel, Verdepryn), organophosphates (Imidan), neonicotinoids (e.g., Assail), Avaunt, Delegate, and Besiege (a mix of Chlorantraniliprole + Lambda-cyhalothrin). Additional insecticidal options are listed in the *New England Tree Fruit Management Guidelines*. Always check for rates on all products.

*Both Intrepid and Rimon are Insect growth regulators that impede egg development. Must be applied before egg laying or shortly after egg laying begins.

CM resistance management. In some regions of the US, CM populations have become resistant to pyrethroids and organophosphates. As you make your selection of pesticides against CM, keep in mind the need to rotate materials with different IRAC classes of active ingredients to decrease the onset of resistance. Use only one of the above active ingredients within the same generation of CM; do not use the same active ingredients across two consecutive generations.

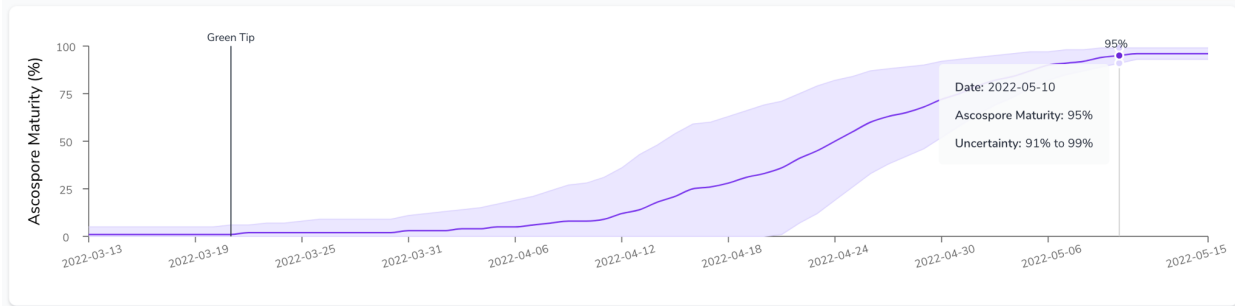
Pathology

Elizabeth Garofalo

Apple scab-

NEWA currently estimates ascospore maturity to be at 95% as of May 10, 2022 suggesting that the next rain event will release all ascospores for the season.

Ascospore Maturity Graph



The Ascospore Maturity model predicts that 95% of the spores are matured. At this point, essentially all ascospores will be released after a daytime rain of greater than 0.10 inch with temperatures above 50 deg F.

Powdery mildew (PM)- It's time!



Those PM infected shoots are open and ripe for secondary infection (recall primary infections are the overwintered mycelia in last year's infected buds). Remove infected shoots where practicable.

Keep in mind that typically fungicides that are effective against apple scab are not effective against PM. With the exception of Cevya (FRAC 3) and Excalia (FRAC 7) which have been

reported to have efficacy against both. Dan Cooley included a handy fungicide efficacy table in the New England Tree Fruit Management Guide, which you can find [here](#). **Remember when planning your rotational schedule, that FRAC 7 is also in Luna Sensation, Merivon and Pristine and FRAC 3 is a component in Inspire Super. Rotate with care.**

Fireblight-

Have the Strep ready- conditions for infection are nigh.

It bears repeating:

Fire blight risk will increase rapidly and be very high by the end of the week.

Our **New Rules for Fire Blight** in NEWA indicate that you should be ready with strep on or before Friday, May 13. Remember:

- **Don't pay much attention to the words or the colors.**
- **Look closely at the numbers – they're by far most important.**
- **If 4-Day DH goes over 300, be ready to spray strep with wetting.**
- **If EIP goes over 100, be ready to spray strep with wetting."**

Belchertown Data

Date (2022)	Cougar Blight 4-Day DH				Infection Potential EIP value			
	Risk Levels:				Risk Levels:			
	Low	Caution	High	Extreme	Low	Moderate	High	Infection
May 8	55				0			
May 9	33				2			
May 10 Forecast	47				3			
May 11 Forecast	93				11			
May 12 Forecast	284				61			
May 13 Forecast	472				115			
May 14 Forecast	685				174			
May 15 Forecast	847				213			

* Indicates incomplete accumulation of the 4-day DH total. The DH value may reach "Caution", "High" or "Extreme" levels before spanning the 4-day accumulation cut-off time of Cougarblight.

Now is also the time to consider using Apogee + Actigard for shoot blight. MSU's Dr. George Sundin gave an excellent fireblight talk at the Ontario Fruit and vegetable conference online last year. Check it out here (It is well worth the watch!):

<https://www.youtube.com/watch?v=MOSdGtd0R0w>

Bottom line: For shoot blight, initiate an Apogee(2oz) + ActiGard(1-2oz) program at King Bloom Petal Fall, continue on a ~10 day schedule through late July or when the terminal shoots stop growing. This helps reduce canker size and can help reduce the damage caused by trauma induced infection provided you start at that King Bloom Petal Fall time.

Ed. note: This is from a recent email exchange on the Great Lakes Fruit Workers email listserv (which is only open to Extension and Research folks, sorry.) I thought it is worth repeating here, starting with a grower from Ontario asking a question being answered by George Sundin. I thought it appropriate to our situation here...JC

Grower asks?:

"We are almost in bloom and looking at a weather forecast of high 20C + with sunshine and no rain (of course forecasts can always change). I'd like to hear your thoughts about strategies to knock down fire blight populations before the rain comes. Our area saw a lot of FB last year after a severe hailstorm on July 1, so many growers are cutting out disease trees/wood and wondering what else they can do? Mary Blyt EIP predictions go from zero to over 100 in the next 2 days but we wait for open blossoms and rain to apply strep. What are your thoughts about Cueva, Buran(?), or others? What would be the most effective strategies in using them to knock down inoculum levels? Would it be best to use these products early to interrupt bacteria populations, or wait a few days and knock populations back before the next rain?"

George Sundin answers:

“Crazy conditions for fire blight once the flowers open. In the immediate time before then, not much can be done. I would have hoped that the cankers were removed during fall/winter. Ea is only growing on flower stigmas so no stigmas, no real population increase yet, but cankers should be oozing very soon.

Streptomycin will be your best material to reduce populations quickly. I've not been real happy with Cueva compared to strep for disease control, so I surmise that it is not as effective in reducing populations either.

Warm daytime temps but mostly the warm overnight temps contribute to explosive Ea growth on stigmas. Our low last night was 61 F, that is a bonanza for growth. I get nervous as more and more warm, humid, but dry days go by because it is more difficult to reduce populations from 10^6+ per flower vs reducing populations of 10^4 per flower or below.

I would advocate breaking that cycle with streptomycin by Thursday or Friday, ahead of possible showers this weekend. Might be some shower chances in our area (MI-ONT) this weekend. It doesn't take too much for rain and infection, 0.025 cm.

Some will ask whether a spray application itself is providing water for possible infection, but water containing 100 ppm streptomycin will be bactericidal, and will partially penetrate into the flower so will take care of that issue.

Kasumin also affects Ea populations similarly to streptomycin, but does not penetrate into the flower so I would advocate using streptomycin first and last going out of bloom. Use Kasumin in the middle especially if the grower wants to save a strep application for trauma blight later. Good luck! George

The key point is making a streptomycin application on Thurs. or Fri. ahead of any wetting. Keep an eye for wet weather and try to spray before it hits. (DC)

Horticulture

Duane Greene

Bloom and Petal Fall Thinning

Flower development has been slow this spring. However, it does appear that the weather will become warmer later this week allowing flower development to proceed much more rapidly. I consider the bloom and petal fall period to be an underutilized thinning opportunity. In general, flowers are much less susceptible to thinners at these times. The bloom and petal fall stages are excellent times to start your chemical thinning. The chances of over-thinning even when high rates of hormone thinners are used is about as great as the odds given Rich Strike to win the Kentucky Derby on Saturday!

Caustic Thinners

The use of caustic thinners has been unpopular in the Northeast for a variety of reasons. Even with the development of the Pollen Tube Growth Model, the time required, the precise timing and phytotoxicity issues have discouraged its use. (Not to mention the general lack of availability of ATS and/or lime sulfur, the latter specifically prohibiting application during bloom.)

Bloom and Petal Fall with Hormone Thinners

Bloom is a time when orchardists frequently do not choose to thin. The bloom period has not yet occurred in many orchards so there is uncertainty about how favorable it will be for bees to fly. Also, the potential for frost still exists. However, it should be noted that the sooner you can start the thinning process, the better chance you have of influencing and encouraging return bloom. There are several options available to use at bloom.

With one exception (Carbaryl) the same hormone thinners can be used at either bloom or petal fall. When selecting a thinner(s) it should be emphasized that thinners are not as potent when used at bloom as when they are applied at the traditional 7-14 mm stage. A rough guess is that thinners applied at bloom and petal fall are about 50% less effective at thinning as they are if they were applied at the 7-14 mm stage.

Naphthaleneacetic Acid (NAA)

Naphthaleneacetic acid (NAA) NAA has been used by growers for over 75 years. There is some comfort in using a compound that has passed the test of time. I routinely have applied NAA at 10 to 12 ppm and I have never over-thinned a tree. This is the concentration range I would suggest. This amount could be applied to a broad spectrum of cultivars. I would be less aggressive on cultivars known to be easy to thin such as Cortland or Cripps Pink.

Naphthaleneacetamide (Amid-Thin W)

This is a thinner that has garnered increased interest from growers recently. Amid-Thin is a weak thinner than NAA and it rarely if ever does it over thin. It has a reputation of being a reasonably consistent thinner. The label allows application of 8 oz/100 gal. I do not recommend using a rate any lower than 8 oz/100 gal. Further, I recommend the addition of a surfactant such as Regulaid with Amid-Thin to increase thinning activity.

Ethephon

Ethephon may be used as an early thinner. The recommended rate is 300 ppm or 1 pt/100 gal. Some have applied it at a rate as high as 400 ppm with good results. It may not be as consistent as other thinners.

Carbaryl

Historically, this has been one of the most popular thinners used in New England. Unfortunately, it is very toxic to bees so it can only be used after the bees have been removed from the orchard. It is unusual among thinners since its effectiveness is concentration independent. It is an excellent choice to combine with NAA or Amid- Thin at petal fall to enhance thinning activity.

Last year I applied NAA at bloom and petal fall at 12 ppm with Regulaid and in the petal fall spray I included carbaryl on one set of Gala trees. On a different set of Gala trees I applied Amid-Thin W at 8 oz/100 gallons plus Regulaid at bloom and petal fall and included carbaryl in the petal fall spray. I achieved thinning with both of these treatments but additional thinning was also necessary. It was a good way to get thinning started. The petal fall application was made after the bees were removed from the orchard, but before the fruit had grown to 5 mm.

From the Drexel 4L Carbaryl label - "BEE CAUTION: May kill honeybees and other bees in substantial numbers. This product is highly toxic to bees exposed to direct treatment or residues on crops or weeds in bloom. Notifying beekeepers within 1 mile of the treatment area at least 48 hours before product is applied will allow them to take additional steps to protect their bees. Limiting applications to times when bees are least active, e.g., within 2 hours of sunrise or sunset, will minimize risk to bees. Do not apply this product to target crops or weeds in bloom. If weed or cover crop bloom is present, mow orchard floor or between rows prior to applying this product. FOR APPLE THINNING USE: Do not apply during bloom. Remove bee hives from the orchard to be treated before applying this product. Removing bee hives from adjacent orchards will further minimize risks to bees."

From the Amid-Thin W label - "DIRECTIONS FOR THINNING APPLES Tree response to Amid-Thin W applications varies greatly based on variety, tree vigor and architecture, alternate bearing tendencies, pollination, weather conditions before, during and after application and bee activity. Other important factors to consider are last year's fruit set level and current year's nutrient reserve status, which is affected by crop load and foliage vigor during the preceding year. Amount of bloom and other factors that make for good fruit set will vary depending on location. Therefore, the amount of thinning to obtain optimal fruit load can vary from year to year. Contact your local Extension Pomologist for time of application and rates to be used for your specific thinning problems and varietal concerns. Spray Amid-Thin W at a rate of 25 to 50 ppm at full bloom or up to petal fall (Table-1). Limit the use of the higher concentrations given in Table-1 below to difficult-to-thin, and/ or vigorous trees with ample pollination and good initial fruit set. Use the lower concentration on easy-to-thin varieties and/or weaker, less vigorous trees with less energy reserves. **One of the outstanding advantages of AmidThin W is that it lowers the risk of over-thinning and therefore can be used as the first step for obtaining optimal fruit load.** It is important to reduce the amount of Amid-Thin W appropriately when mixing with other thinners including carbaryl or 6-BA. It is also important that Early Summer varieties are sprayed no later than petal fall since applications two to three weeks later often give insufficient thinning and may result in the development of inferior pygmy fruit. Apply when daytime temperatures are between 65°F to 85°F. Do not spray when daytime temperatures are below 50°F."

Table-1. Application Rates of Amid-Thin W for Thinning Apples at Full Bloom¹, Petal Fall² in Normal Years³

Apple Varieties	Rate (NAA ppm)	Amount of Amid-Thin W		
		100 gallons/Acre	150 gallons/Acre	300 gallons/Acre ⁴
Easy-to-thin: Granny Smith, Braeburn, Cripps Pink, Cortland, Baldwin, Idared, Jonathan, Northern Spy, McIntosh, Red Delicious, Rome Beauty, Stayman, Rhode Island Greening, and others.	25-40	0.25 – 0.40 lb. (4.0 – 6.4 oz.)	0.38 – 0.60 lb. (6.1 – 9.6 oz.)	0.75 – 1.20 lb. (12.0 – 19.2 oz.)
Moderately difficult-to-thin: Gala, Golden Supreme, Honeycrisp, Cameo, Gingergold, Jersey mac, Rome, Jonagold, Empire, Olenburg (Duchess) Red Astrachan, Spartan, Mutsu, Yellow Transparent, Williams Early and others.	25-50	0.25 – 0.50 lb. (4.0 – 8.0 oz.)	0.38 – 0.75 lb. (6.1 – 12.0 oz.)	0.75 – 1.31 lb. (12.0 – 20.9 oz.)
Difficult-to-thin: Fuji, Golden Delicious, Jonamac, Lodi, Macoun, York, Yellow Newton, Paula Red, Early McIntosh, Taylor Rome and others.	40-50	0.40 – 0.50 lb. (6.4 – 8.0 oz.)	0.60 – 0.75 lb. (9.6 – 12.0 oz.)	1.20 – 1.31 lb. (19.2 – 20.9 oz.)

¹ Full Bloom: When 90% of the blossoms are fully open with petals beginning to fall from the king flower.

² Petal Fall: When approximately 90% of petals have fallen off.

³ Spraying can be delayed up to 3 weeks (21 days) after full bloom if unusually cool weather has slowed growth during a cold year when daytime temperatures are consistently below 50°F.

⁴ At 300 gallons/Acre the maximum rate that can be applied is 44 ppm as NAA.

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>

Follow me on Twitter (<http://twitter.com/jmcectman>) and Facebook

(<http://www.facebook.com/jmcectman>)

[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 May 17, 2022. In the meantime, feel free to contact any of the [UMass Fruit Team](#) if you have any fruit-related production questions.

Thank you sponsors...



[Orchard Equipment and Supply Company, Inc. Conway, Massachusetts](#)



[New England Vegetable & Berry Growers' Association](#)



[Valent USA](#)



[Trécé](#)



FARM CREDIT EAST

[Farm Credit East](#)