



Healthy Fruit, Vol. 27, No. 13, July 9, 2019

Jon Clements, Author (unless otherwise noted) and Editor



CONTENTS

[Current degree day accumulations](#)
[Upcoming pest events](#)
[Upcoming meetings](#)
[The way I see it](#)
[New England Tree Fruit Management Guide](#)
[Insects](#)
[Diseases](#)
[Horticulture](#)
[Small Fruit Update](#)
[Guest article](#)
[Facebook Me](#)
[Useful links](#)
[Thank you sponsors...](#)



CURRENT DEGREE DAY ACCUMULATIONS

Because of an internet outage at the UMass Orchard in Belchertown, no degree day update. The degree day update will now be discontinued. Although I will estimate that Degree Days Base 43 are app. 1635 right now. You can use that when referring to UPCOMING PEST EVENTS.



UPCOMING PEST EVENTS

Coming events	Degree days (Base 43)
Apple maggot fly 1st catch	1217 to 1743
Codling moth 1st flight subsides	1285 to 1831
Codling moth 2nd flight start	1587 to 1221
Dogwood borer flight peak	1402 to 1836
Lesser appleworm 2nd flight start	1429 to 2108
Lesser peachtree borer flight peak	879 to 1759
Oriental fruit moth 2nd flight peak	1464 to 1960
Peachtree borer flight peak	1060 to 2016
Redbanded leafroller 2nd flight peak	1524 to 1966
Spotted tentiform leafminer 2nd flight peak	1385 to 1777



UPCOMING MEETINGS


None planned...unless already registered for the MFGA Summer Meeting on July 10.



THE WAY I SEE IT

Well, the severe storms on Saturday knocked the power and internet service for a loop at the UMass Orchard in Belchertown. Our internet service provider has been unable to fix to date, therefore, not much happening in terms of productivity on my end. I have spent time summer

pruning peaches, see [this excellent write-up by Rich Marini about the importance of summer pruning peaches](#). Also note that apple maggot fly are flying, I am sure Jaime Pinero has more on that. Cherry harvest is in full swing, Montmorency are being picked at the UMass Orchard. Watch the SWD on those. Water may need to be turned on in some orchards, I can't get a good handle on what's going on at the UMass Orchard because of our weather station outage, but note below the significant negative water balance at another Massachusetts orchard as predicted by the NEWA Apple Irrigation Model. Turn the water on!

Green tip date	In row spacing	Between row spacing	Trees per acre	Age of orchard	Water balance
04/14/2019	3 feet	14 feet	1037	Mature 	

Apple Evapotranspiration Model Results							
Date	Orchard ET (gallons)		Rainfall		Irrigation	Water Balance (gallons/acre)	
	per tree	per acre	inches	gallons/acre	gallons/acre	Daily	Cumulative
Jul 2	3.2	3323	0.00	0	0	-3323	-3323
Jul 3	5.2	5374	0.00	0	0	-5374	-8696
Jul 4	4.1	4291	0.00	0	0	-4291	-12988
Jul 5	5.0	5214	0.00	0	0	-5214	-18201
Jul 6	3.3	3388	0.21	3992	0	603	-17598
Jul 7	3.8	3918	0.01	190	0	-3728	-21325
Jul 8	2.7	2772	0.00	0	0	-2772	-24098
Jul 9	4.7	4906	0.00	0	0	-4906	-29004
Jul 10	4.9	5130	0.00	0	0	-5130	-34134
Jul 11	3.9	4029	-	-	0	-4029	-38162
Jul 12	2.3	2433	-	-	0	-2433	-40595
Jul 13	4.1	4289	-	-	0	-4289	-44884
Jul 14	3.7	3847	-	-	0	-3847	-48731
Jul 15	3.7	3860	-	-	0	-3860	-52591

You can enter your own rainfall or irrigation amounts and click the "Calculate" button which will appear above to recalculate the water balance.



Turn the water on!!!



They're BACK!!!



INSECTS

Jaime Pinero

Codling moth (CM). The 2nd generation peak flight occurred somewhere between mid to late June. As a reminder, the biofix for CM is the starting date of the first sustained flight of male moths captured in pheromone traps. Insecticide sprays targeting eggs of the second-generation CM should be applied at 1260 DD (base 50°F) after biofix and 2 weeks later. However, 3 sprays may be needed if the first generation was not well controlled and trap counts continue to exceed threshold (> 5 CM per trap per week). Under low to moderate population pressure, 1-2 sprays will be necessary to control the second generation.

CM research update: Research aimed at evaluating traps baited with plant-based lures targeting female codling moths will be initiated this week at various commercial orchards. If proven effective, using odor-baited traps may represent one way of reducing female populations in organic and conventional orchards regardless of whether or not blocks are under mating disruption. We will keep you updated!

Apple Maggot Fly (AMF). AMF is active in Belchertown! **On average**, 2.9 adult AMF were captured in just 3 days in 8 unbaited sticky red spheres in an **UNSPRAYED** section of the UMass Cold Spring Orchard. Low-rate applications of Imidan 70-W (IRAC group 1B) will provide good AMF control. Other effective materials include Assail (IRAC group 4A) at a rate of 8 oz. per acre, and Belay (IRAC group 4A) at a rate of 6 oz. per acre. Insecticides with moderate efficacy against AMF include Avaunt (IRAC group 22) at a rate of 8 oz. per acre and Exirel (IRAC group 28) at a rate of 13.5 to 20.5 fl. oz. per acre. Except for Imidan which has a 96-hour REI (14-day REI for PYO/public orchards) all materials listed have a REI of 12 hours. Avoid tank-mixing Exirel with Captan.

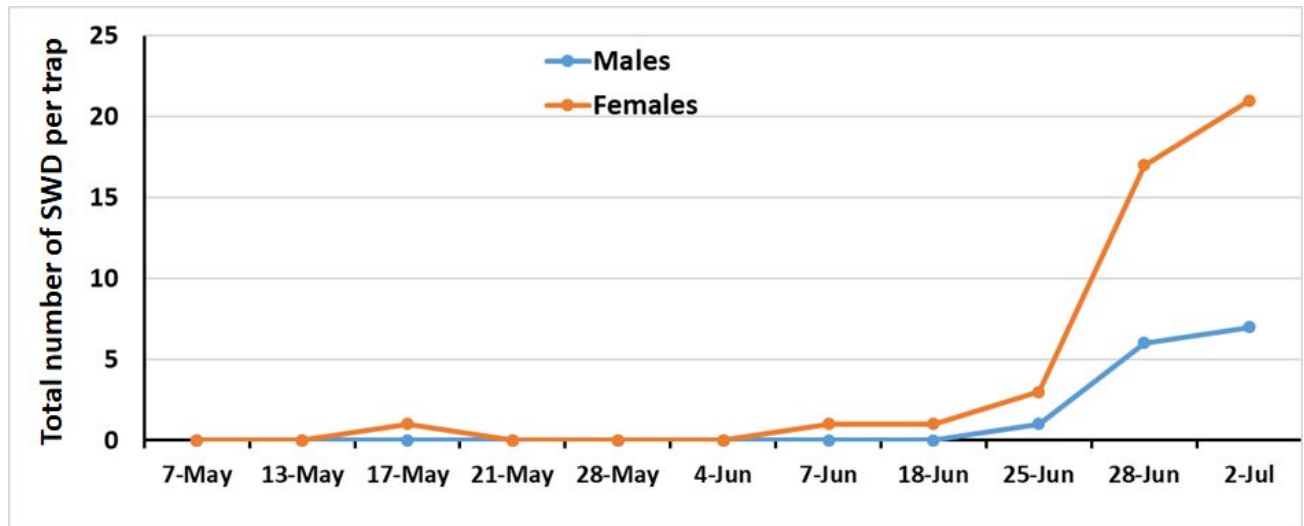
The recommended treatment threshold is an average of 2 AMF per unbaited trap or 5 AMF per baited trap. Trap captures for a week following insecticide treatment are ignored. Subsequent sprays can be applied once the threshold is reached again.

AMF research update: Field-scale research aimed at evaluating components of an attract-and-kill strategy to kill adult AMF involving lures and targeted insecticide applications will be conducted at five commercial orchards located in MA, NH, and ME starting as early as next week.

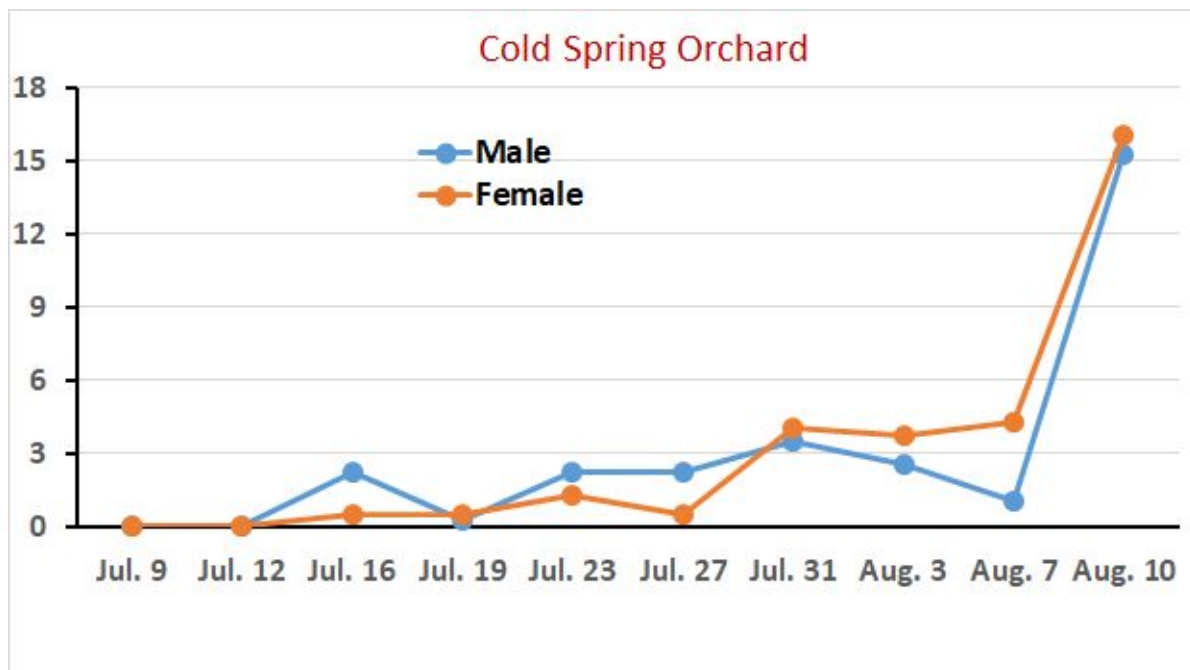
Mites. In many cropping systems, like tree fruits, spider mites are secondary pests. They only become a management issue when pesticides are applied to control other pests. This is typically attributed to the non-target effects of many pesticides on spider mite natural enemies, especially predatory mites, which result in disruption of biological control.

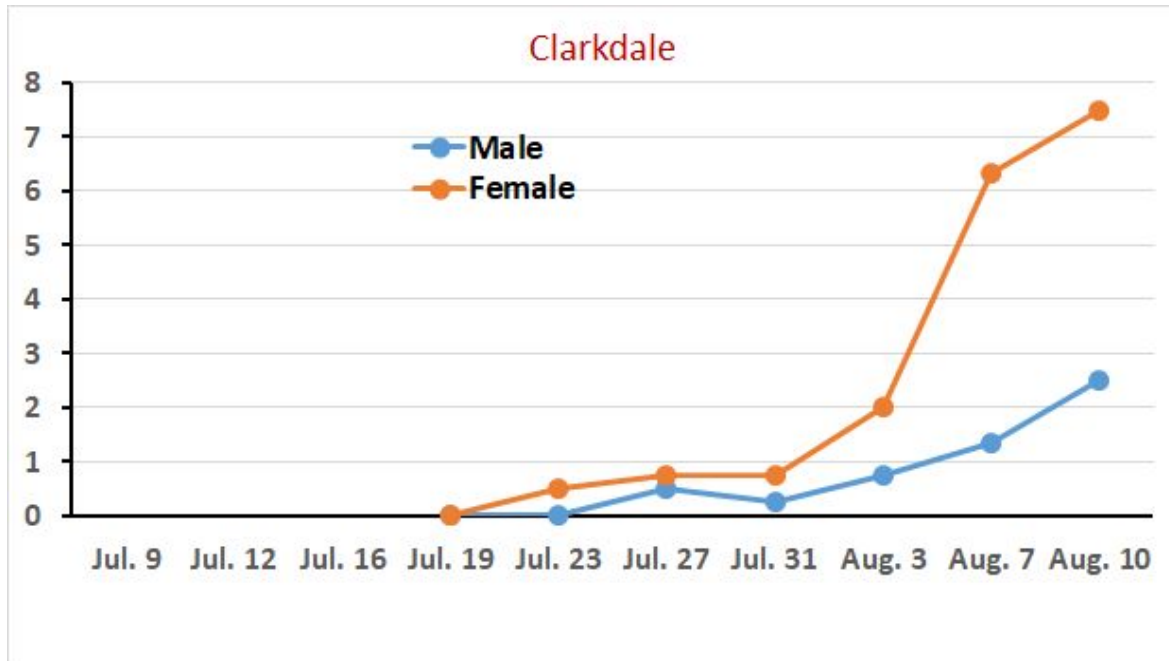
An excellent article on mite management tools for the summer and biological control, written by Peter Jentch (Cornell University Hudson Valley Laboratory), can be found [here](#).

Spotted Wing Drosophila (SWD). As shown in the Figure below, captures of SWD in one monitoring trap baited with diluted grape juice (Cold Spring Orchard, Belchertown, MA) were consistently low until around 18 June. For the last two weeks, SWD captures have been increasing substantially, with three times more females than males recorded for the last sampling date (2 July).



NOTE: The timing of the increase in SWD populations in 2019 seems to be taking place a few weeks earlier, when compared to 2018 data from the same location (UMass CSO). But also see the second figure, from Deerfield, MA.





SWD research update: Research is underway to determine the effects of fermentation of diluted grape juice on captures of SWD and non-targets using traps.



DISEASES

No disease report this week...



HORTICULTURE

Jon Clements

Mostly I want you to read [this excellent write-up by Rich Marini about the importance of summer pruning peaches!](#)



SMALL FRUIT UPDATE

Sonia Schloemann

Spotted Wing Drosophila (SWD) - Trap captures for SWD around the region are increasing with many traps yielding double digits of both male and female flies. Larvae have been found in Cherries, Early Season Raspberries, Blueberries and Dayneutral Strawberries in several locations around the region but not in a great number of fruit. It's time to employ all recommended tactics for SWD management.

These include:

- 1) maintaining an open canopy with good sunlight reaching the ground where fallen fruit may lie
- 2) frequent and thorough harvest of ripe fruit
- 3) immediate refrigeration of harvested fruit
- 4) frequent use of the [salt flotation test](#) to monitor for fruit infestation
- 5) a weekly spray regimen **or** the installation of exclusion netting to keep SWD out of a planting. Monitor SWD in the field or inside a netted area with traps to confirm that SWD have been controlled.

SWD Insecticide charts from last year are still accurate for this year.

See them at:

Small Fruit: http://ag.umass.edu/sites/ag.umass.edu/files/pdf-doc-ppt/2018_sw_d_insecticides_for_small_fruit.pdf

Stone Fruit: http://ag.umass.edu/sites/ag.umass.edu/files/pdf-doc-ppt/2018_sw_d_insecticides_for_stone_fruit.pdf

An excellent guide for organic growers entitled "[Management Recommendations for Spotted Wing Drosophila in Organic Berry Crops](#)" is available, too.

CROP CONDITIONS: While some areas have had big rain recently, it missed other areas and growers should be ready to irrigate if they have received less than 1-2" inches in the last week. Also, some locations have had **hail**. See:

https://www.canr.msu.edu/news/how_should_fruit_growers_respond_to_hail_and_severe_storms for some good information on how to deal with hail damage in your fields.

Strawberries: June-bearing harvest is over for all but the latest varieties. Renovation is the order of the day. See:

<https://fruit.wisc.edu/2019/07/05/strawberries-post-harvest-renovation-or-rotation/> for a nice article on how to determine if it's time to renovate a field or rotate it to another crop/cover. [Black Vine Weevil](#) and other summer root weevils may be present in fields. Prompt renovation or plow down is an important step in limiting the spread of this pest. Weevils feed mainly at night, so evening sprays work best for controlling them. If plowing down infested fields, leave a trap row (or two) to attract weevils and then spray that row. Avoid locating new plantings near infested older fields. **Brambles:** Floricane fruiting varieties are being harvested now. The main issue is [Spotted Wing Drosophila](#) (SWD). Numbers are still relatively low, but growers should be actively controlling their potential damage now and hopefully limiting their population growth for later in the season. See the list in the SWD section above for recommended practices for managing SWD. Frequent and thorough harvesting of ripe fruit is probably the most important thing to do to limit their buildup and damage. [Potato Leafhopper](#) (PL) are out in force. Treating PL will not undo existing damage, but will prevent further damage and allow canes to resume

normal growth. [Japanese Beetle](#) (JB) are starting to emerge and can cause feeding injury on both foliage and fruit. If using traps to reduce numbers, do not place traps near the raspberries but instead place them 10-20 yards away preferably upwind in order to draw them away from the planting. Soil applied treatments targeting the new generation of grubs in the soil can be made late-July/August. **Blueberries:** Harvest for early varieties is beginning or will start this coming weekend. The crop looks very good in most areas. As with Brambles, [Spotted Wing Drosophila](#) is the biggest concern now. Frequent and thorough harvest is very important. See additional recommended steps in the SWD section above. [Blueberry Maggot Fly](#) has also been reported. This pest occurs concurrently with SWD and should be well controlled by sprays targeting SWD. We have not had many reports on **mummy berry** so far. If you had a lot of shoot strikes earlier in the season, can you let us know (by emailing umassfruit@umass.edu) how it is progressing in the fruit development phase? Include information on if and what you may have sprayed to protect the fruit from infection. Thanks!! **Other Fruit:** [Haskap/Honeyberry](#) harvest is complete. [Lingonberry](#) first flush of fruit is coloring now and should be ripe in 7-10 days. [Elderberry](#) are in bloom to fruit set. [Gooseberry and Currant](#) harvest is underway. For information on spray materials (conventional and organic options) for any of these pests, see the [2019 New England Small Fruit Management Guide](#). Hard copies are still available at: <https://www.umassextensionbookstore.com/products/108>



GUEST ARTICLE

Improving Your Late Season Peach Brown Rot Control Program

Norman Lalancette, reprinted from [Plant & Pest Advisory, Rutgers Cooperative Extension, July 8, 2019](#)

From early July through the first half of September, our attention turns to peach harvests. And for disease control, a great deal of focus is on preventing brown rot development in the ripening fruit. Failure to effectively manage brown rot during the first half of the harvest season can set you up for significant yield loss in the second half of the season, especially if rains become frequent. Infected, sporulating fruit from early maturing cultivars provides fuel (inoculum) for infection of the mid- and late-maturing cultivars. Remember, the harvest season is one big epidemic for brown rot.

This article is a continuation of my earlier article titled “Improving your early season peach brown rot control program” (plant-pest-advisory.rutgers.edu, April 17, 2019). This former publication discussed blossom blight control as well as quiescent / latent infections occurring in young, green fruit. If you haven’t read this article, or forgot much of it, now is a good time to read or review it. I assume you followed the advice of the former article and therefore do not have significant latent infection lurking in your fruit!

The Data Speaks ... Again

Way back in 2010, a standard fungicide efficacy trial contained a single treatment of the fungicide captan (80WDG at 3.75 lb/A) applied at shuck-split and first cover through eighth cover. No sprays were applied during the subsequent 27 days prior to harvest, the period during which fruit ripen and become increasingly susceptible to brown rot. Regardless of the lack of preharvest fungicide applications, this cover spray only program significantly reduced brown rot at harvest, providing 60% control.

In subsequent years, from 2012 through 2018, similar cover spray only programs were tested using the protectant fungicides captan, sulfur, ziram, and thiram. Only the captan cover spray programs were observed to consistently reduce brown rot at harvest. In fact, the captan programs never failed to significantly reduce brown rot, providing 50 to 78% control, with an average 61% control. Furthermore, a bioassay was developed which showed that the control was due to the presence of fungicide residue on the fruit surface. Surprisingly, even heavy rains during the preharvest period failed to reduce the efficacy of the captan residue.

Cover Spray Program Refinements

Subsequent research during 2017 and 2018 refined the cover spray program in two ways. First, the rate of captan 80WDG could be reduced to 3.125 lb/A without any loss of control relative to the 3.75 lb/A rate. A lower rate of 2.5 lb/A would continue to significantly reduce brown rot, but the level of control would no longer be as effective as the high rate.

A second and perhaps more important refinement was that only the final two cover sprays need to be captan in order to obtain the control benefit. The bioassay once again demonstrated the presence of an effective captan residue on the fruit when just the two final cover sprays were applied.

An Improved Preharvest Program

Implementation of the improved program is easy. Simply apply captan in the final two cover sprays at 2.5 lb ai/A. For the 80WDG formulation, this is 3.125 lb/A. As with the earlier cover sprays, these applications should be applied at 10-14 day intervals. Use a 14-day interval for normal or relatively dry conditions and 10-day interval for wet conditions.

At 10-14 days after the final captan cover spray, begin the preharvest fungicide program. The recommended program for mid- to late-season cultivars consists of applications at 18, 9, and 1-day preharvest. The final spray can be applied between the first and second or third pickings, if necessary (assuming a 0 or 1 day PHI); it helps to protect the fruit during subsequent handling.

At least three different chemistries should be utilized in the preharvest sprays since these highly effective compounds are at-risk for resistance development. Some example programs are: Merivon / Indar / Merivon; Luna Sensation / Indar / Luna Sensation; and Flint Extra (at maximum rate) / Indar / Fontelis. Note other DMI fungicides, such as Orbit, PropiMax, Orius, and Rhyme could be substituted for Indar.

Improved Program Benefits

Several benefits are obtained when implementing the improved brown rot program. First, the two captan cover sprays provide a minimal protection level that has been shown to be quite resistant to wash off from heavy rains. So, if the at-risk materials cannot be applied at the above optimum timing due to unfavorable weather, rest assured that the captan will provide a “base level” of control. This should limit the occurrence of a major outbreak.

Second, the at-risk preharvest fungicides are all highly effective materials that are capable of providing excellent control without the captan. However, with the captan present, these materials no longer need to provide “all” the control. This combined effect should result in more durable and consistent control year-to-year.

Third, unlike the at-risk materials, the captan is a multi-site inhibitor and therefore not susceptible to resistance development. Thus, the combination of captan and use of three different at-risk chemistries provides an excellent strategy against resistance development in the preharvest fungicides.

Finally, the improved program does not require any additional sprays. Simply replace the final two cover spray materials (e.g., sulfur) with captan to obtain the benefits. It can't be any simpler.



You don't want to be seeing this come harvest time!!!



FACEBOOK ME

No FACEBOOK ME this week...



USEFUL LINKS

[27th Annual March Message \(2019\) to Tree Fruit Growers \(Google Doc\)](#)

UMass Fruit Advisor: <http://umassfruit.com>

Scaffolds Fruit Journal: <http://www.nysaes.cornell.edu/ent/scaffolds/>

Network for Environment and Weather Applications (NEWA): <http://newa.cornell.edu>

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

[Acimovic Lab at Hudson Valley](#)

[Peter Jentsch's Blog](#)

The next Healthy Fruit will be published on or about July 23, 2019. (Although I will be in Ontario on the IFTA Summer Study Tour, so that may make getting Healthy Fruit out kind of problematic.) 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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