



Healthy Fruit, Vol. 28, No. 17, July 21, 2020

Prepared by the University of Massachusetts Amherst Extension Fruit Team

Contents

[Current degree day accumulations](#)

[Upcoming pest events](#)

[Upcoming meetings](#)

[The way I see it](#)

[Insects](#)

[Diseases](#)

[Horticulture](#)

[Small Fruit Update](#)

[Guest article](#)

[Facebook Me](#)

[Useful links](#)

[Thank you sponsors...](#)

Current degree day accumulations

UMass Cold Spring Orchard, Belchertown, MA (Since January 1)	20-July
Base 43 BE (NEWA, since January 1)	2068
Base 50 BE (NEWA, since January 1)	1402

Note this will be the last Current degree day accumulations for 2020. See you next year...

Upcoming pest events

Adapted from [Scaffolds Fruit Journal](#)

Coming events	Degree days (Base 43 BE)
Apple maggot 1st oviposition punctures	2005-2575
Apple maggot fly peak flight	2139-2640
Codling moth 2nd flight peak	1967-2267
Lesser appleworm 2nd flight peak	2144-3071
Oriental fruit moth 2nd flight subsides	2030-2510
Redbanded leafroller 2nd flight subsides	2144-2699
San Jose scale 2nd flight peak	2137-2493
Spotted tentiform leafminer 2nd flight subsides	1985-2343
White apple leafhopper 2nd brood nymphs	1827-3105

Announcements and Upcoming meetings

The way I see it...

Jon Clements

Not a whole lot going on. Other than:

- **UMass Extension Fruit and Massachusetts Fruit Growers' Association 'Summer' Meeting**, via Zoom, this Thursday, July 23, 2020. 5:30 PM. 2 pesticide applicator re-certification credits! Details and pre-registration: <https://ag.umass.edu/fruit/events/umass-fruit-team-summer-meeting>

- 'Virtual' Summer Tour of UMass Orchard, UMass Fruit Team YouTube Channel https://www.youtube.com/channel/UCKCU0_6fvuSPLtWvsmDhfwg and Playlist https://www.youtube.com/channel/UCKCU0_6fvuSPLtWvsmDhfwg/playlists
- Time to collect leaves for nutrient analysis. Details below under Horticulture. Should be part of your MDAR-mandated Nutrient Management Plan, right? :-)
- Don't forget ReTain can be used on peaches (and nectarines) to improve harvest length and fruit quality. Details below in Horticulture.

That's all folks, see you Thursday at 5:30.

Insects

Jaime Piñero

Weekly report of insect pest captures in monitoring traps at CSO (Belchertown, MA)

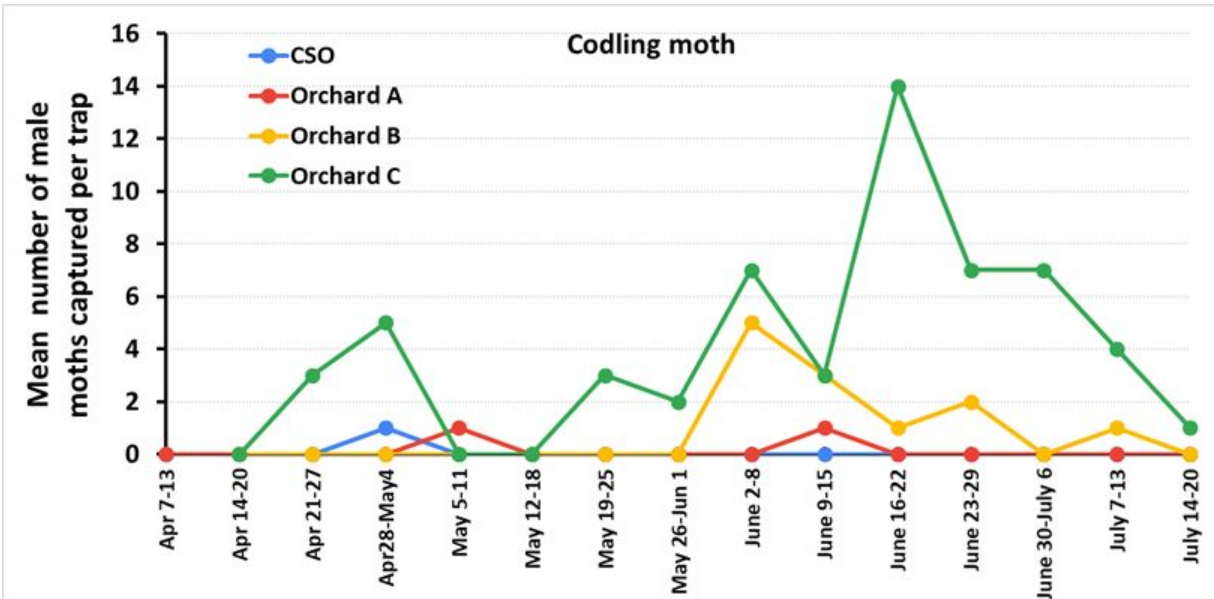
[Period: 7.14 - 7.20](#)

Insect	Average captures/trap	Notes
Redbanded leafroller	9	Pheromone-baited trap
Oriental fruit moth	2	Pheromone-baited trap
Codling Moth	0.5	Pheromone-baited trap
Spotted tentiform leafminer	102	Pheromone-baited trap
Obliquebanded leafroller	0.25	Pheromone-baited trap
Spotted Wing Drosophila	19 (8 Jul.) 12.5 (15 Jul)	Males and females combined. Diluted Concord grape juice-baited trap
Apple Maggot Fly	6.00	Unbaited sticky-coated red spheres

Apple maggot fly. Captures in unbaited sticky spheres in one unsprayed section of the UMass Cold Spring Orchard have increased substantially in the last 2 weeks. For the period

comprising the last 7 days, the average number of AMF per trap is 6 (female:male ratio= 5:1).

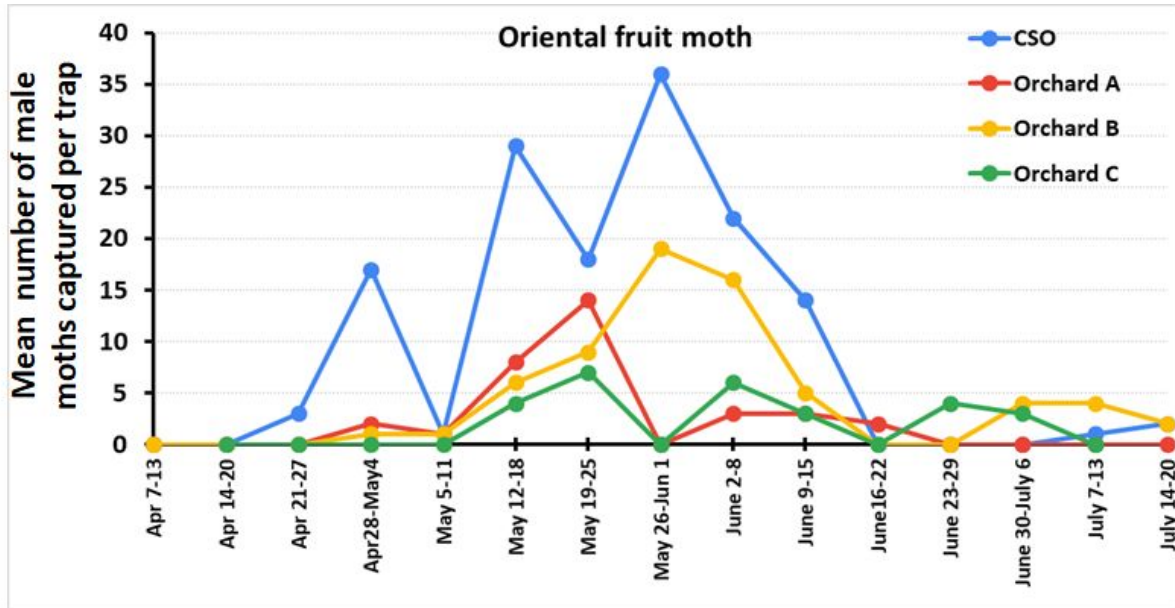
Codling moth. First-generation CM adult activity is winding down. The second-generation flight is expected to start soon. This is a good time to change out lures ahead of second generation flight.



Spraying against CM using trap thresholds. If > 5 CM adults 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 the threshold throughout the season, maintain insecticide coverage on a 2-week interval.

Spraying against CM decisions using BIOFIX data. Sprays against the summer generations of CM LARVAE should be timed to start approximately 250-360 DD (base 50°F) after 1st adult catch FOR EACH GENERATION.

Oriental fruit moth. OFM captures in the four monitored orchards have remained low since mid-June, possibly reflecting good control of the first generation moths.



Spraying against OFM using trap thresholds.

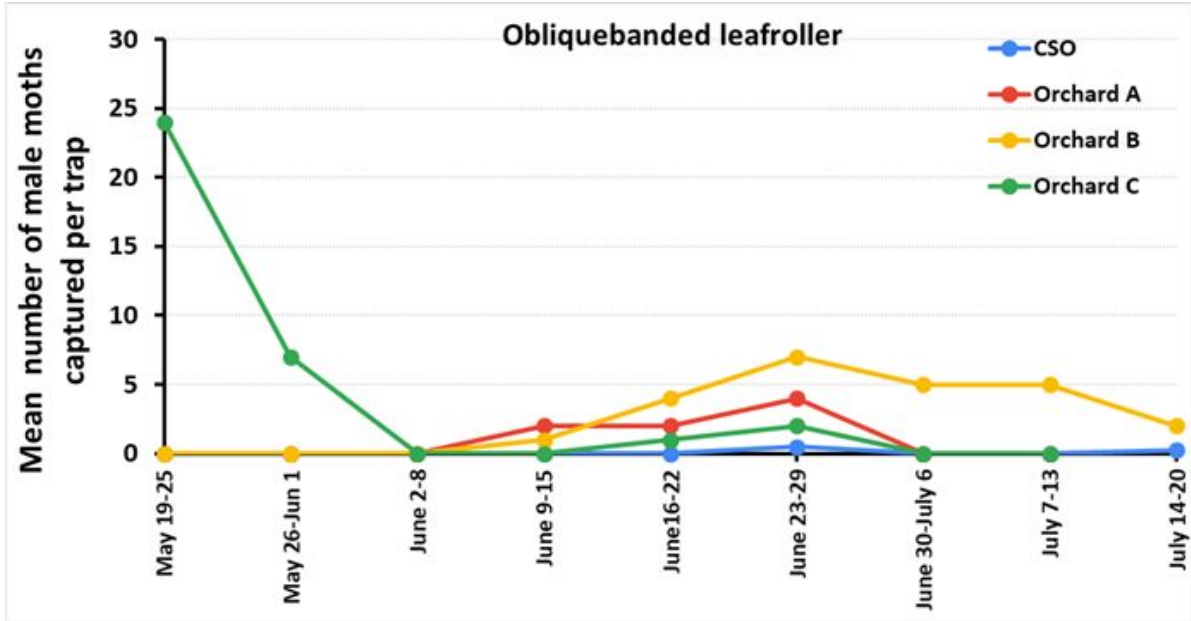
Very low density OFM populations: If traps capture 0-3 moths per trap per week between 800 to 1,600 DD after biofix then an insecticide application is not justified.

Low-density OFM populations: If 3-7 moths are captured per trap per week between 800 and 1,500 DD (after biofix) will trigger a single insecticide application at 1,400 DD.

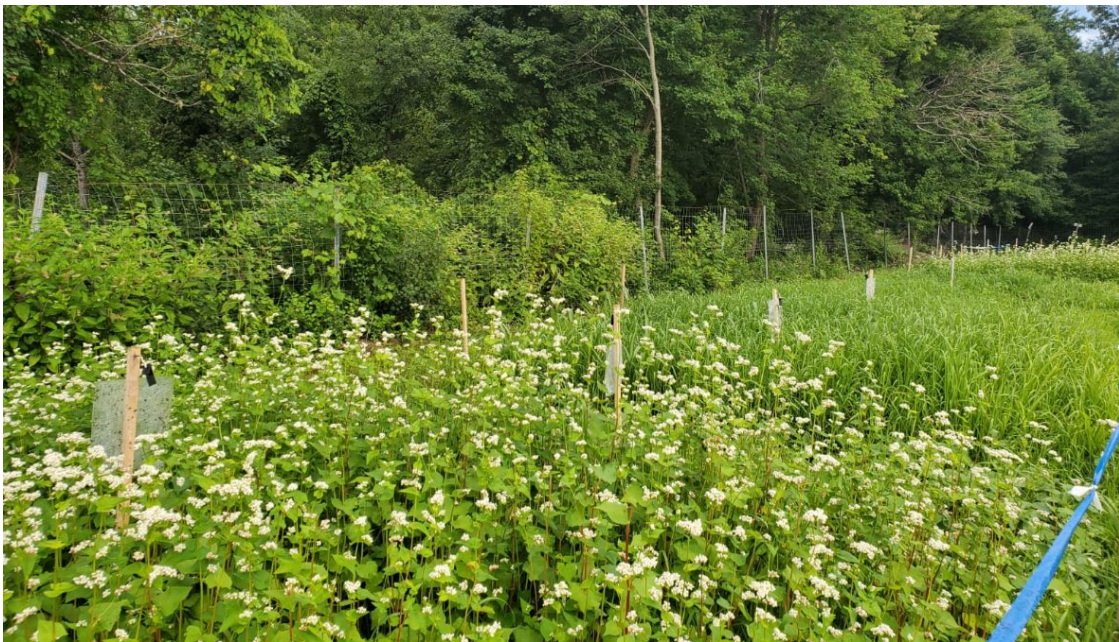
Moderate- to high-density OFM populations: Orchard blocks with damaged fruit and/or > 10 OFM/trap/week may need two insecticide applications 14 days apart starting at 1,100 DD.

Spraying against OFM using BIOFIX data. Sprays against the summer generations of OFM **LARVAE** should be timed to start approximately at the 10% hatching point which coincides with 175-200 DD (base 45°F) after the first sustained adult moth catches of the 2nd and 3rd broods. We recommend follow-up applications at 10-14 day intervals.

Obliquebanded leafrollers. OBLR populations have subsided in the four monitored orchards. This means that larvae are developing. 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.

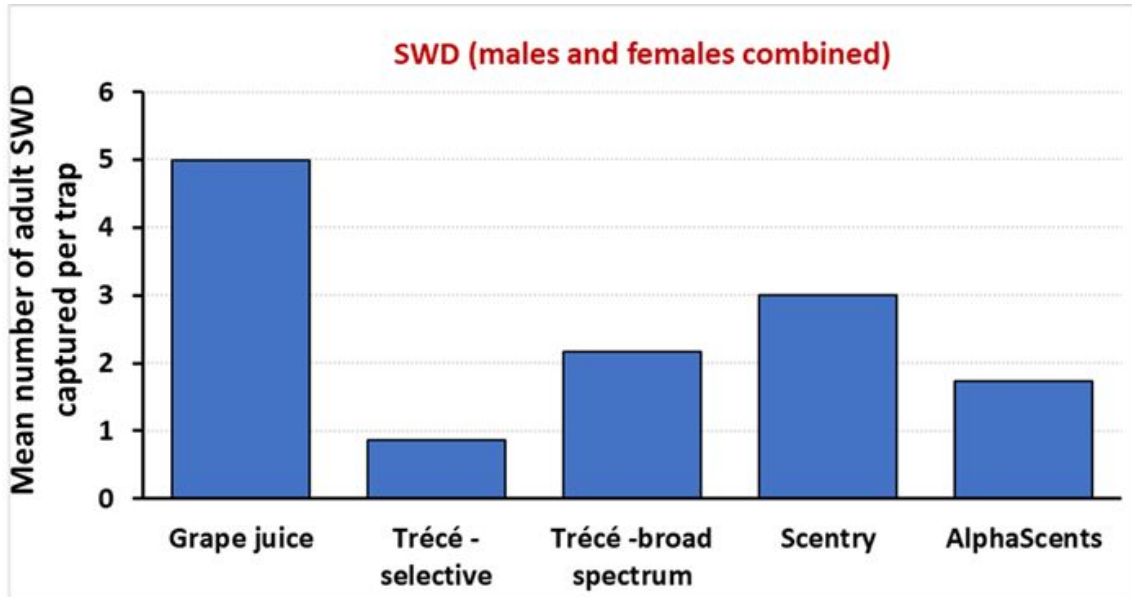


Brown Marmorated Stink Bug. The first BMSB adults were captured by odor-baited clear sticky cards at CSO on July 13th, 2020. We have four pheromone-baited sticky cards deployed on sunflower, buckwheat, sorghum, and pearl millet, as part of a preliminary trap crop research project. Three of those sticky cards caught 5 BMSB.

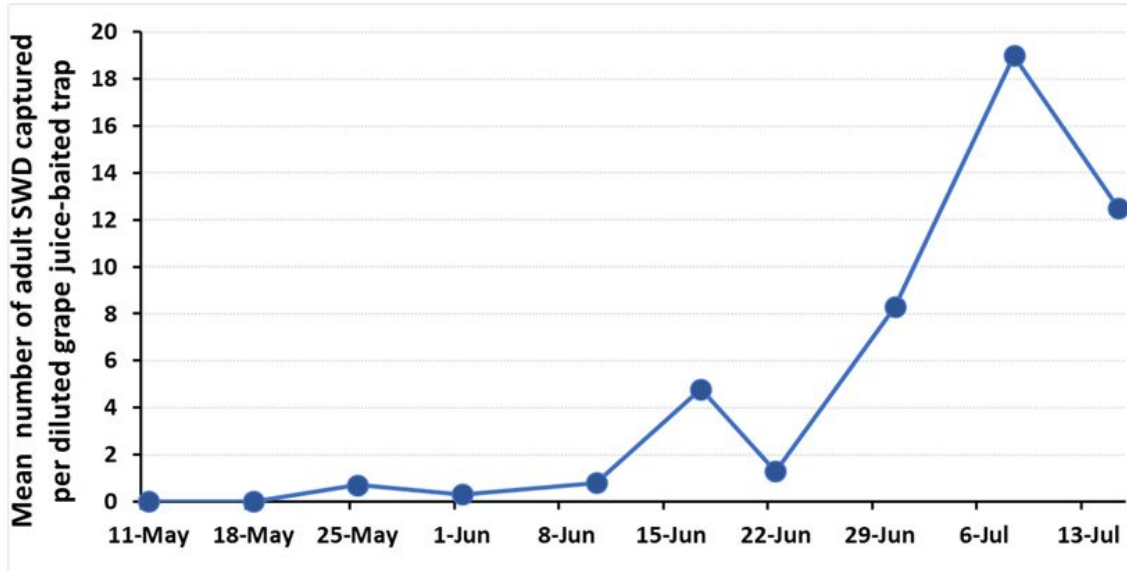


Spotted wing Drosophila. For the last two months, we have been comparing the performance of diluted Concord grape juice at capturing SWD against that of four commercial lures, at four MA locations. Below is a summary of our findings. Diluted grape juice showed to be the most attractive material for adult SWD.

It is important to note that the diluted grape juice was replaced every week whereas the commercial lures were not replaced throughout the study. The expected lure longevity is 4-6 weeks for the two Trécé lures and for the Scentry lure, and 8 weeks for AlphaScents.



The chart below shows seasonal captures by diluted grape juice-baited traps. SWD populations have been increasing for the last 2 weeks, and are expected to continue with that upward trend.



Effective insecticides for use against key insect pests over the summer

APPLE – SUMMER

EFFECTIVENESS OF INSECTICIDES: HIGH (H) AND MODERATE (M)

Insecticide	a.i.	IRAC	AMF	CM	OFM	OBLR	Potato Leafhopper
Intrepid 2F (IGR)	Methoxyfenozide	18		M	M	H	
Dipel DF (OMRI)	B.t.	11A		M	M	H	
Assail 30SG	Acetamiprid	4A	H	H	H		H
Delegate 25WG	Spinetoram	7	M ¹	H	H	H	
ALTACOR 35WDG	Chlorantraniliprole	28	M ¹	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		
Voliam Flexi WDG	Thiamethoxam + chlorantraniliprole	28 + 4A		H	H	H	H
Belt 4SC	Flubendiamide	28		H	H	H	
Actara 25WDG	Thiamethoxam	4A					H
Entrust SC (OMRI)	Spinosad	5	M ¹	M	M		
Admire PRO 4.6SC	Imidacloprid	4A				H	H
Verdepryn 100SL	Cyclaniliprole	28	M ¹	?	?	?	?

* 14 day REI for PYO/public orchards

¹Suppression only

Diseases

Liz Garofalo and Dan Cooley

Don't get **bitter (rot)**!

In spite of persistent “moderate” drought conditions occurring in ~47% of the state (as of last week, according to the [U.S. Drought Monitor](#)), conditions have been favorable for bitter rot infection and disease development. Belchertown has seen temperatures ranging from lows of 58°F (at night, of course) to highs of 94°F. Since July 1, there have been 9 days the rain gauges have registered precipitation. Given that bitter rot and most other **summer diseases** love these southern swamp-like conditions, you should be maintaining fungicide coverage sufficient to protect fruit. We are more used to dealing with **sooty blotch/flyspeck** here in what, climatically, *used* to resemble the North. However, bitter rot and the other major fruit rot, black rot, call for a somewhat more intense spray approach. The forecast, according to [NOAA](#), calls for more summer disease weather for Wednesday and Thursday with temperatures in the mid-80s and ~60% chance of rain.



Early bitter rot symptom development. Lesions appear sunken and light to dark brown.

Given the potential for infection in the next few days, fruit should be protected. If you haven't made a fungicide application recently in the last 10-14 days, or since the last 1.5" of rain, it's time to spray again. Mancozeb is good, but with a 77 day PHI, is off the table for anything harvested before October 6. Topsin + Captan, Flint, Pristine, Merivon and Luna Sensation are all good choices, BUT, remember to ROTATE, ROTATE, ROTATE! These are powerful tools and we do not want to lose them. Check labels for FRAC codes, and be sure when using premixes to rotate with a material NOT contained in the premix. Even with premixes, we recommend a low rate of captan for resistance management. Also keep an eye on labels for limits on the total amounts.

Finally, in your spare time, reduce disease pressure and inoculum spread by removing visibly infected fruit from the orchard!

Horticulture

Jon Clements

Foliar/leaf tissue nutrient analysis

In our Orchard BMP Manual

(<https://ag.umass.edu/sites/ag.umass.edu/files/pdf-doc-ppt/checklist.pdf>) an *annual* leaf tissue test gets the most points, however, that is not really practical if you do a leaf analysis by block and variety (which you should do). So, albeit a lesser BMP rating (3 points vs. 5), “a leaf tissue test only if performed once in 3 years and used to modify fertilizer program as indicated” is more practical and recommended.

I am going to quote Mary Concklin here to make my life easier, and she is good. Afterwards, I will tell you where to send your leaf samples.

From Mary in her latest (July 20) Fruit Update email:

- Tissue analysis is an excellent tool to use when diagnosing nutrient problems, as well as when making your fertilizer decisions. Optimum sampling time for tree fruit is 60-70 days after petal fall.
- Tissue analysis indicates the level of macro and micro nutrients in the plant. Combine this with a soil analysis, which indicates what is available in the soil, for a fine tuned fertilizer program. However, if your pH is way off, the tissue results will not be very accurate. Soil pH impacts the ability of the plant to take up nutrients as well as the availability of nutrients.
- For tree fruit - select leaves from this years' growth that are in the middle of the shoot (do not take leaves from vigorous suckers), are insect and disease free, are the same variety and same age bracket for accurate recommendations. If you have several trees that look odd, sick or just plain not right, submit a sample from those trees and a separate sample from the same variety that is healthy. This will provide a good comparison. For example, trees showing signs of blind wood, caused by deficiencies of zinc as well as magnesium, would be sampled and submitted as a separate sample from the same variety that is not exhibiting the same symptoms.
- Rinse the leaves/petioles to remove any spray deposits which will skew the results. Dry and then ship to the lab. All labs use the same testing method for tissue testing. Soil testing methods vary by lab so once you select a lab, stick with that lab in order to

compare results from year to year. Sampling instructions and forms can be found on the UConn Nutrient Analysis Lab website (<http://www.soiltest.uconn.edu/index.php>).

OK, the **UMass Soil and Plant Nutrient Testing Laboratory** is not accepting leaf tissue samples yet. You could hang on to your samples and submit them later?

<https://ag.umass.edu/services/soil-plant-nutrient-testing-laboratory> Not necessarily recommended because I like to see my results sooner than later so I can field check them.

Waypoint Analytical is a commercial nutrient testing service which I use and recommend: <http://www.waypointanalytical.com/AgServices>

Dairy One I have not used, however, it looks like a good option and is recommended by Cornell University <https://dairyone.com/services/forage-laboratory-services/plant-tissue-analysis/>

Penn State University Agricultural Analytical Services Lab does Plant Tissue (Total) Analysis. Although I have not used it, I suspect Pennsylvania apple growers use their service: <https://agsci.psu.edu/aasl/plant-analysis/plant-tissue-total-analysis>

In **New England**, open are the UConn Lab Mary referenced above and at UMaine (<https://umaine.edu/soiltestinglab/>).

ReTain on peaches

Adapted from New England Tree Fruit Management Guide/Stone Fruit/Peaches/Plant Growth Regulators <https://netreefruit.org/stone-fruit/peaches/plant-growth-regulators> by Jon Clements

ReTain® Plant Growth Regulator (Valent Biosciences) is labeled for harvest management and improvement of fruit quality of peaches and nectarines.

The label specifies: Depending on cultivar, orchard conditions, and grower objectives, one or more of the following benefits will be associated with ReTain...

- Improved harvest management
- Additional time for increase in fruit size
- Maintenance of fruit firmness
- Reduced preharvest fruit drop
- Improved fruit quality
- Enhanced storage potential
- Rate and Timing: Apply one pouch of ReTain per acre one to two weeks prior to the anticipated beginning of the normal harvest period of untreated fruit

Water Volume: ReTain efficacy requires that fruit and foliage receive thorough spray coverage. To ensure thorough coverage adjust water volumes based on tree size and spacing and use

calibrated spray equipment (i.e., orchard air blast sprayer). Excessive spray application volumes that result in spray runoff will reduce product performance. In most cases, 100 gallons per acre has been shown to be effective.

Use of Adjuvants: For optimal response, use ReTain with a 100% organosilicone surfactant. Use a final surfactant concentration of 0.05 to 0.1% (v/v) in the spray tank. To reduce foaming, add the adjuvant last and minimize agitation.

Harvest: The normal harvest period for a particular orchard block refers to that time when fruits not treated with ReTain would be harvested. To help determine the beginning of the normal harvest period, refer to historical trends for harvest dates and the “days from full bloom to harvest” interval for each cultivar in your area, and closely monitor the fruit maturity development for the current season.

Additional Notes: Pre Harvest Interval (PHI): ReTain has a 7 day (PHI) for labeled Stone Fruit.

Small Fruit Update

[Sonia Schloemann](#)

CROP & WEATHER CONDITIONS

Rain has brought some drought relief to some areas but much of the state still remains abnormally dry or in moderate drought conditions. Irrigation remains vital to holding, sizing and ripening berry crops. Also, pay particular attention to renovated strawberry fields that need good soil moisture in order to regrow the canopy, size branch crowns and set fruit buds for next year. Newly planted field also require 1-2" of rain or irrigation per week to support plant establishment. Now is the time for leaf tissue analysis. See more on this topic below. Please note that the UMass Soil and Tissue testing lab is not accepting tissue test samples yet. For the time being we are recommending that samples be sent to private labs listed in the [New England Small Fruit Management Guide](#) until the UMass Lab is fully operational again.

Strawberries - Harvest is done in June-bearing fields and renovation is underway (see [last issue](#) of Berry Notes for more on renovation steps). New fields are producing runners that should be swept into rows to keep rows narrow. Insect pests present in renovated fields can continue to be [Black Vine Weevil](#), [Strawberry Root Worm](#), and [White Grubs](#). [Tarnished plant bug](#), [potato leafhopper](#) and [two-spotted spider mites](#) can be problematic in Day-neutral fields. [Botrytis Gray Mold](#) can also be a continuing problem in Day-neutrals.

Blueberries: Harvest continues. PYO has been going smoothly according to reports. Remember to check on the [MDAR Guidance](#) on how to run PYO during the Governor's phased reopening period. Irrigation remains important. [SWD](#) is the most serious insect pest of concern. [Japanese Beetle](#) may also be a serious pest at this time. Adult beetles will begin laying eggs in the soil in late-July and early-August. Soil applications of biocontrols can be made at this time and must be watered in to be effective. There have been some reports of [glyphosate injury](#) to plants. In bushes where most of the canes appear to be affected, the bush may not survive.

Where only a small portion of the bush is affected, cut that portion out and the bush should resume normal growth.

Raspberries: Harvest is underway for summer fruiting (floricane) varieties with early and mid-season varieties being done in some areas, leaving late-season varieties to pick. Early fall-bearing (primocane) varieties are flowering and fruiting now and will begin to have ripening fruit soon. Black raspberries are finishing up and Blackberries are ripening now for harvest. [Cane Borers](#) are showing up in some plantings. Also a little [cane/spur](#) blights and/or [Botrytis](#) cane blight. To discern the difference among these cane diseases it is best to submit a sample to the [UMass Diagnostic clinic](#). Another insect pest that has appeared in low or no-spray fields or plantings is [Flatid Planthopper](#) (*Metcalfa pruinose*). The adults are gray/green fast moving leafhoppers. The immatures look rather like mealy bugs but they jump. It is unclear how much damage they can do. Azadirachtin products (AzaGuard, Aza Direct, etc.) are among the materials recommended for this pest. In commercial settings, the materials listed for controlling [Potato Leafhopper](#) will also control this pest. Finally, there are several drupelet disorders that can be found in blackberries. Check out this blog post on the North Carolina State Univ. Extension Rubus Blog explaining the various causes: <http://teamrubus.blogspot.com>.

See the [New England Small Fruit Management Guide](#) for recommended materials and rates for any insect or disease mentioned above.

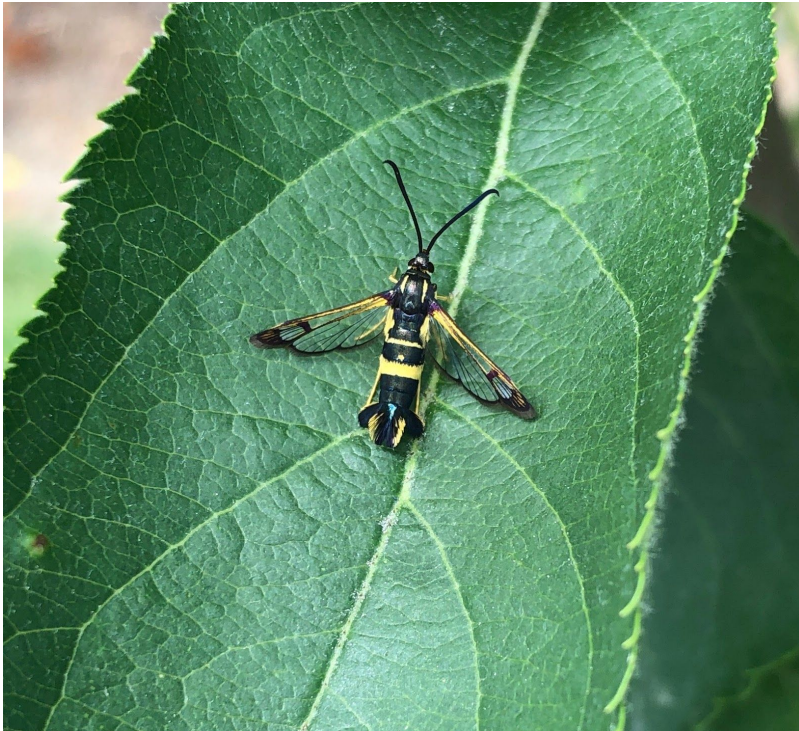


Figure 1 - (left) Blueberry showing Glyphosate damage (photo: A. Madeiras, UMass Extension); (center) 'Polana' primocane raspberry with flowers and green fruit; and (right) ripe 'Natchez' blackberry (photos: S. Schloemann, UMass Extension).

Hawkeye's corner (notes from the field)

Liz Garofalo

Dogwood borer is on the wing at Cold Spring Orchard.



Adult female (the yellow band on the fourth abdominal segment is wider on females than males) dogwood borer. Photo taken in Belchertown, MA 7-20-20.

Also observed in the field, San Jose Scale damage showing up (check your high pressure blocks and hot spots to see if you are experiencing damage):



Caterpillars are on the march, munching blueberry...



"Azalea" caterpillars make a meal of blueberry (and other host) foliage.

And apple alike.



Tussock moth caterpillars do a number on apple shoots.

Dipel or other Bt. materials will easily manage both these pests if applied when they are small to medium sized. Once they get fat and nasty, more severe action may need to be taken. Bear in mind, these are often not problematic in most orchards, although tussock moth has been popping up here and there even in conventionally managed sites.

Guest article

No Guest article this week...

Facebook Me



Clarkdale Fruit Farms

22h · 🌐



Peaches will be available at our drive-through store tomorrow, Tuesday the 21st from 1-3pm at the farm! Drive in to the right of the farmhouse, and proceed around the barn to the front of our sales area. We will take your order and deliver to you, while you remain in the comfort of your car. Prices are \$6-1 quart box, \$9-1.5 quart box, \$4 utility 2 quart bag. Yellow-fleshed peaches only at this time. Please wear a mask. Our store will open for regular shopping hours later this week. Thank you!




  124

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Useful links

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

[UMass Extension Fruit Team YouTube Channel](#)

[UMass IPM Fruit Loop Podcast](#)

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/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 August 4, 2020. 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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