



Healthy Fruit, Vol. 29, No. 14, July 20, 2021

Prepared by the University of Massachusetts Amherst Fruit Team

Contents

[Upcoming meetings](#)

[The way I see it](#)

[Insects](#)

[Diseases](#)

[Horticulture](#)

[Guest article](#)

[Facebook Me](#)

[Useful links](#)

[Thank you sponsors...](#)

Upcoming meetings

Why are my trees growing so poorly? - Webinar

We have been increasingly noticing tree collapse in New York orchards over the past several years. There are a number of causal factors, both biotic and abiotic, that can cause tree death. In this webinar, Cornell and Penn State experts will provide a quick summary of some of the common agents of tree collapse typical of northeast apple orchards. Hosted by CCE-ENYCHP and CCE-LOFP.

Agenda:

2:45 – 3:05 - Credit Check in and Introduction - Mike Basedow

3:05 – 3:15 - Boring insects and tree decline- Janet van Zoeren

3:15 – 3:25 - Nematodes and their association with apple replant – Dr. Kerik Cox

3:25 – 3:35 - Could viruses be involved in poor tree growth? - Dr. Marc Fuchs

3:35 – 3:45 - Apple tree decline case studies and quality - Dan Donahue

3:45 – 3:55 - Investigating causes of apple tree decline in Pennsylvania – Dr. Kari Peter
3:55 – 4:05 - Abiotic issues, such as drought and cold damage – Dr. Terence Robinson
4:05 – 4:30 - Questions and discussion

1.5 DEC credits are available for this online meeting in categories 1a, 3a, 10, 22, and 25. In order to receive credits, you must complete the following:

- * Enter your NYSDEC applicator ID number into the registration field when you register for the meeting. (Attendees from Vermont, Massachusetts, and Connecticut may also enter in their ID's to receive credits through their state reciprocity agreements.)
- * Each employee seeking credit must register separately, and watch from their own device to receive credit.
- * Send a photocopy of your applicator ID to Mike Basedow at mrb254@cornell.edu or (518) 410-6823 by noon on August 2nd.
- * Log onto the meeting by 2:45 for a virtual roll call so we can ensure your screen name matches the applicator ID we have on file.
- * Attend the meeting in its entirety.
- * Using in-session polling, answer occasional poll questions to verify that you are actively engaged throughout the course of the session.

Questions may be directed to Mike Basedow at mrb254@cornell.edu or (518) 410-6823.

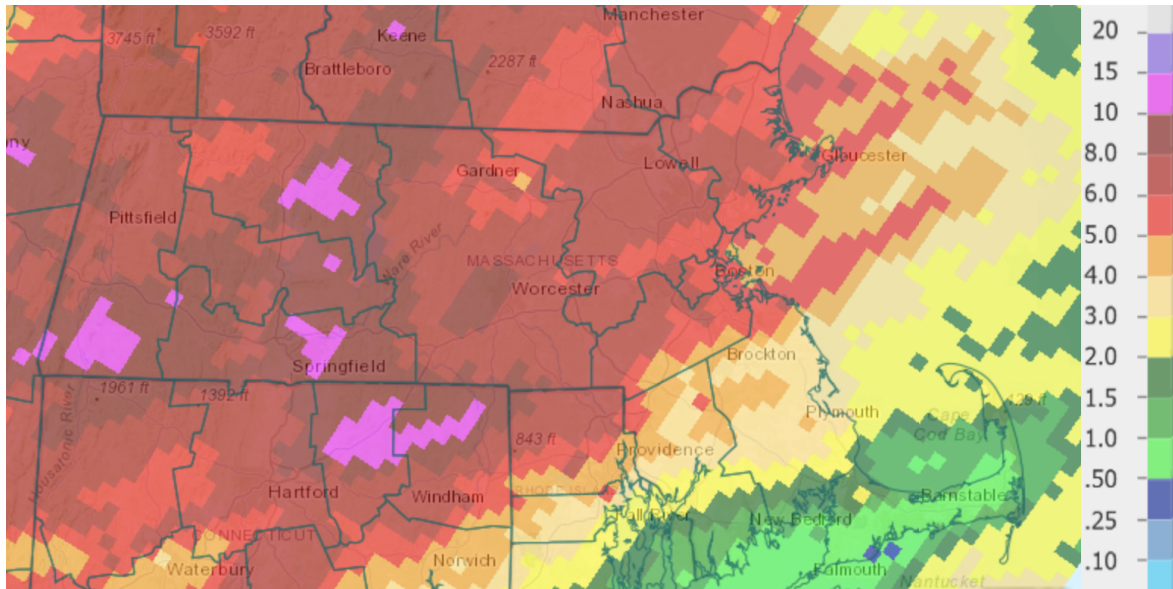
Time: Aug 2, 2021 03:00 PM in Eastern Time (US and Canada)

To Register: [Meeting Registration - Zoom](#)

The way I see it...

Jon Clements

I see it is wet. I am concerned about the consequences on fruit quality, but time will tell. I do like to look at this map: <https://water.weather.gov/precip/>



That is for the past 14 days. Looks like Cape Cod is the place to be? Most of the rest of Massachusetts received 6 to 20 inches of rain over the past two weeks. Weren't we in a drought last year at this time? I will take a dry growing season over a wet one any day. Let's hope the spout turns off and it gets cooler in August, we have reached the peak of summer, it is all downhill from here... :-)

Otherwise, a reminder it is almost time to do a foliar leaf analysis and that you can use ReTain on peaches. See [Guest Article](#) and [Horticulture](#) respectively below...

Picture of the week...



Woolly apple aphid (WAA) observed in rather high frequency (what is threshold?) in one MA orchard. Diazinon is gold standard for treatment, left unchecked can lead to sooty mold on fruit. Other good insecticide options include Transform WG, Movento, Sivanto Prime, or Senstar.

Insects

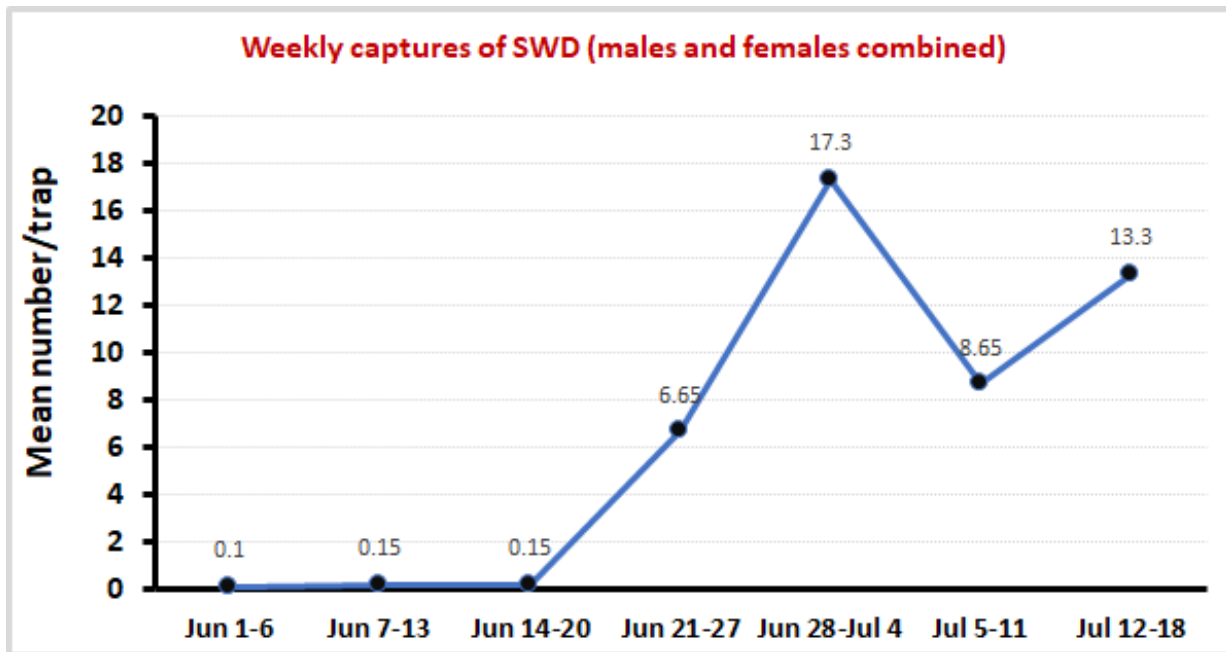
Jaime Piñero

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

[Period: 7.13 - 7.19.2021](#)

Insect	Average captures/trap	Notes
Obliquebanded leafroller	0	Pheromone-baited delta trap (CSO)
Codling moth	0	Pheromone-baited delta trap (CSO)
Oriental fruit moth	5	Pheromone-baited delta trap (CSO)
BMSB	0.08	Pheromone-baited clear sticky card (13 traps across MA)
SWD	13.3	Comparison of fresh and fermented diluted Concord grape juice vs. commercial lure (20 traps in all)

Spotted-wing drosophila (SWD). After a slight decline in captures for the week of July 5-11, SWD captures are back up (13.3 SWD were captured, on average, across 20 traps located at 5 MA farms). SWD weekly captures are presented in the chart below.



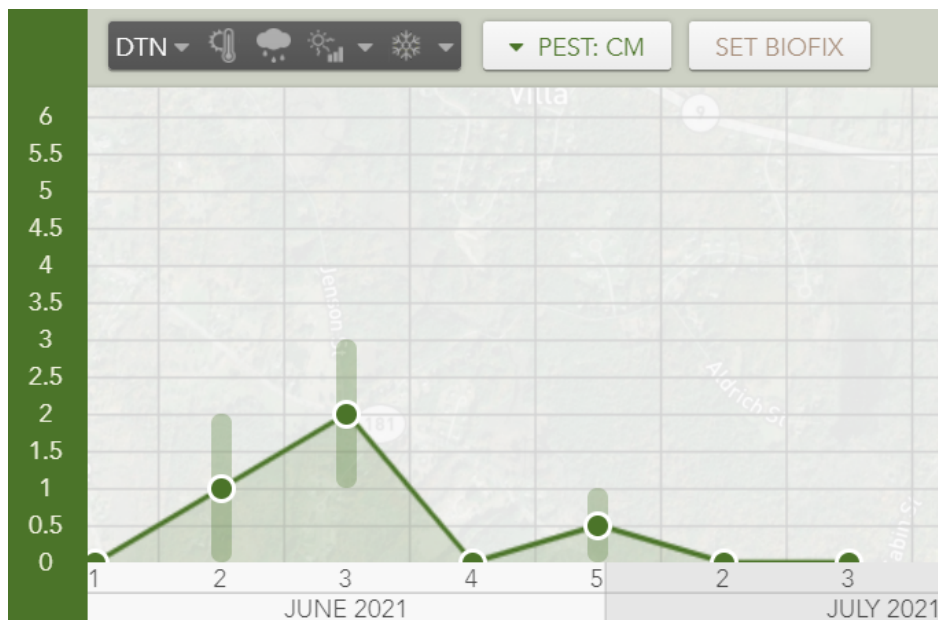
So, what type of material should be sprayed against SWD? Most people are looking for materials that have short REI. Consider rotating materials. If you have applied previously a high-effectiveness insecticide, then I think materials such as Assail would be good. But if Assail represents the first application of the season, then perhaps you can use something else, and

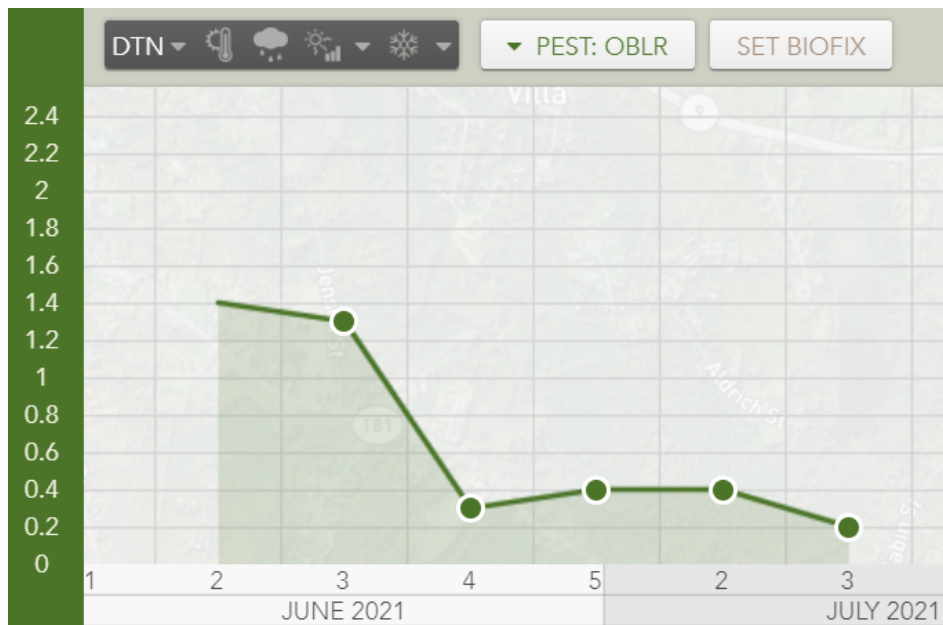
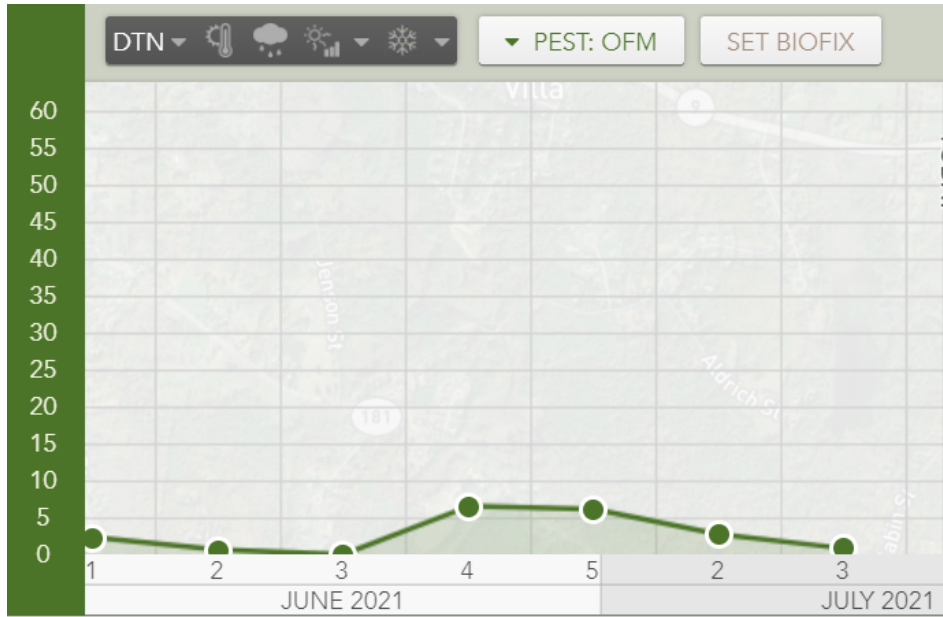
reserve Assail for the next spray. This is based on the following recommendations from Cornell University:

Insecticides with excellent efficacy include – Delegate WG (3 days), Delegate WG supplemental label (1 day), Exirel (3 days), Bifenture 10DF (1 day), Brigade WSB 2(ee) (1 day), Danitol 2.4EC (3 days), and Mustang Maxx (1 day), Lannate SP (3 days), Lannate VP (3 days), and Imidan (3 days). Of these, choose first the one with the longest pre-harvest interval (given in parentheses) that you can accommodate; some may be out of the question at this point. Rotate to other insecticides with shorter pre-harvest intervals for closer to harvest.

After using a highly efficacious insecticide, for the subsequent application, it is usually adequate to use an insecticide that has lower efficacy – Entrust Naturalyte 2(ee) (3 day3), Entrust SC 2(ee) (1 day), Assail 30SG 2(ee) (1 day), Malathion 5EC 2(ee) (1 day).

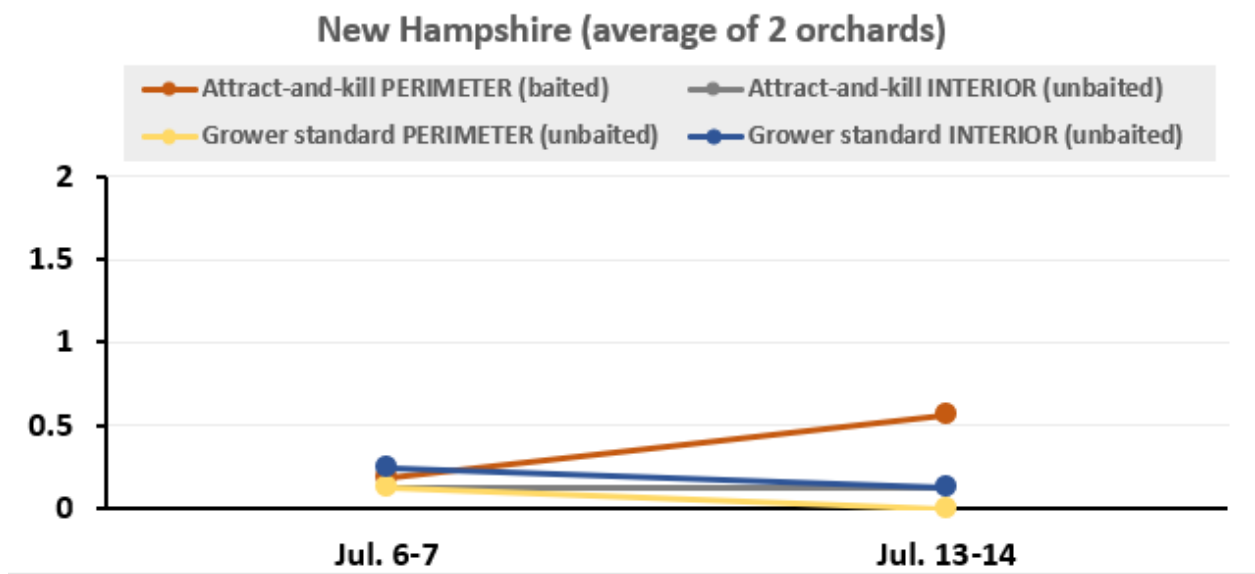
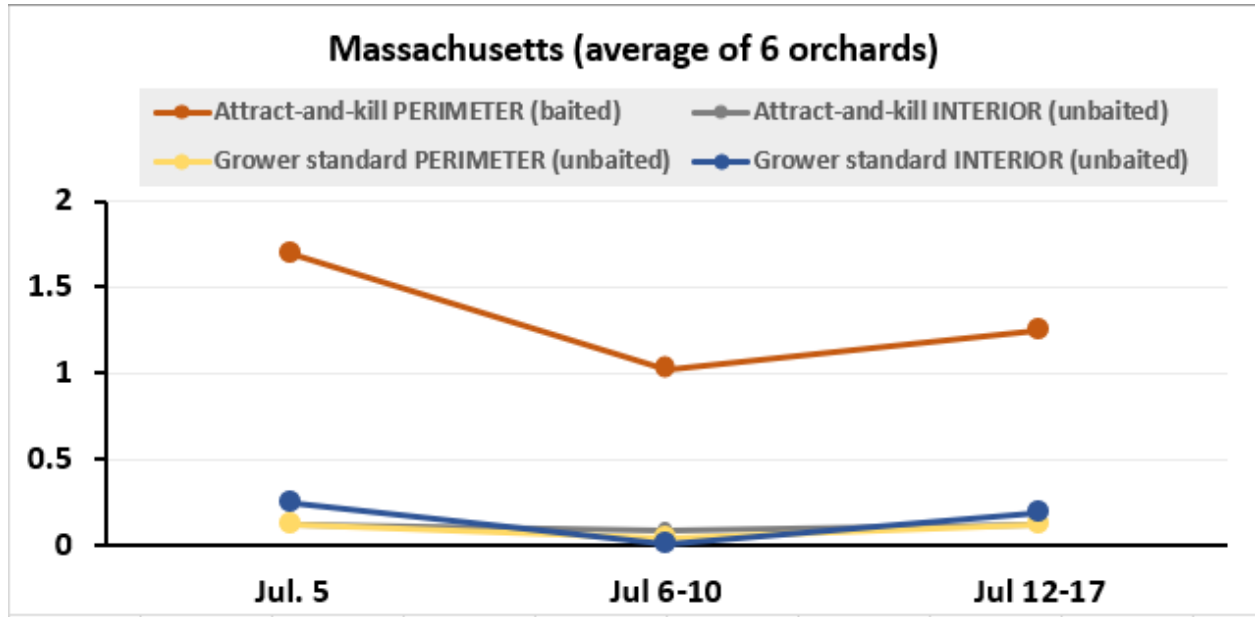
Codling moth (CM), obliquebanded leafroller (OBLR), and Oriental fruit moth (OFM). Captures of CM and OBLR have been low, overall (captures of either species at CSO were ZERO). We have not seen evidence of the onset of the second generation. In the case of OFM, trap captures at the CSO orchard have been below threshold, yet, greater than CM captures.





Apple maggot fly (AMF). For the last 2.5 weeks since the beginning of the attract-and-kill (=AK) study in MA, NH, and ME, captures of AMF have been low. Only one orchard reached the cumulative threshold of 5 AMF/trap when AMF lures are used. This orchard sprayed the perimeter of the AK block with insecticide and sugar (3-4 lbs per 100 gallons). As shown in the chart below, the presence of AMF lures in the perimeter of AK blocks results in greater numbers of AMF on perimeter-row monitoring sticky spheres but no or very few flies are penetrating. This shows, thus far, good performance of this AK approach.

In the two NH orchards, AMF captures are so low, that even perimeter-row spheres in AK blocks (in the presence of lures) they are indistinguishable from any other unbaited traps.



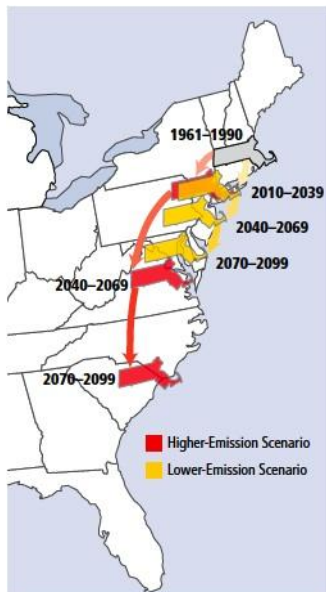
Brown Marmorated Stink Bug (BMSB). Only one BMSB has been captured in monitoring clear sticky traps for the last couple of weeks. Hence, the risk of fruit injury is very

low. Next week, I will provide an update on the performance of TRAP CROPPING in association with GHOST TRAP at attracting BMSB to those locations.

Diseases

Dan Cooley

Weather has a lot to do with plant diseases, and plant pathogens love the kind of weather we've been having. I've shared this picture before, and even though it oversimplifies climate change impacts, I'm putting it out there again because, with respect to tree fruit diseases, I think it rings true.



The map shows how the climate in MA in 1990 will change to be more like the climate in the 1990 climate in the Mid-Atlantic and South as climate change kicks in. If anything, I think it's conservative in how long it will take, because it sure feels like Virginia and North Carolina in Amherst MA today. And I know now we're seeing disease pressure here from summer diseases that I only heard about as 'Mid-Atlantic problems' 30 years ago. A lot of that has to do with warmer weather, particularly warm nights. And we get the extremes in dry and wet weather like we've seen over the last couple of months. So, now we have Mid-Atlantic problems like black rot and bitter rot.

We talked about those diseases and the most effective fungicides to use against them last week in *Healthy Fruit*. When it's this wet, it's tough to keep fungicides on fruit, between rain wash-off and just simply getting through the orchard to put them on. But they are the best defense against fruit rots.

The first signs of these summer diseases are starting to show up. Jon sent me the photo below, asking what it was. There are a few things going on.



The leaves are easy - there's scab and frog-eye leafspot. Frog-eye is caused by the fungus *Botryosphaeria obtusa*, and I'm sure some of you know the same fungus causes black rot on fruit. Frog-eye is an early sign that the black rot fungus is active in an orchard.

The fruit symptoms are something I haven't seen for a number of years, a disease called calyx end rot, also sometimes blossom end rot. There are three different fungi that cause the disease, though the symptoms are very hard to tell apart. I'm going to focus on one of the fungi, the one I just mentioned, the black rot fungus, *B. obtusa*. I think that's what's causing the problem here.

The fungus starts infecting the sepals from a flower, and if conditions are right, will expand into the calyx end of the fruit. The black fruit rot surrounded by red tissue in this picture is typical. While the infections first get into sepals around petal fall, in most years, that's where they stay. In some cases, the fungus may start to grow again as fruit ripens, producing typical fruit black rot symptoms. But in some cases, the fungus will grow into fruit earlier, causing calyx end rot. I

suspect the abnormal rain and warm weather are why we are seeing CER in early summer, most likely caused by the black rot fungus.

The older fungicide Topsin is probably the most effective material against black rot. The FRAC 11 fungicides (Flint Extra, Sovran etc.) or fungicides that contain a FRAC 11 (such as Pristine, Merivon or Luna Sensation) are good. Captan is only fair, and I mention that only because it's a commonly used and effective material against other summer diseases, such as sooty blotch and flyspeck.

One of the best things that could happen to help decrease fruit rot pressure would be a shift to our normal New England summer weather. Let's hope.

(Ed. note: A. I knew what it was, mostly. B. Scaffolds article [here](#) is good too. We learned a lot from Dave Rosenberger.)

Notes from the field

[Liz Garofalo](#)

No notes from the field this week...

Horticulture

Jon Clements, Editor

McIntosh predicted harvest date...

The formula (Central New York) = $201.53 - 0.16FB - 1.08MT - 30$ where FB = date of McIntosh Full Bloom (+ 3) and MT-30 = average daily temperature for the 30-day period following bloom. (<https://ecommons.cornell.edu/handle/1813/3299>)

For Belchertown, FB = May 4 + 3 = 7. MT-30 = 58.5. So, the formula: $201.53 - 0.16(7) - 1.08(58.5) = 137$ days. From May 4 that predicts September 18 as the LAST day for McIntosh harvest destined for CA storage. (Who stores in CA anymore?)

Redhaven peach predicted harvest date...

The predictive equation is $D = -0.0386x + 234.9$, where x is the cumulative degree-days (DD) base 50 degrees Fahrenheit from Jan. 1 through June 3 and D = the estimated harvest day of year (e.g., Jan. 1 = 1 and Dec. 31 = 365 in a non-leap year). The estimation is for the onset of the main season Redhaven harvest, not including fruit with split pits that typically ripen several days earlier than undamaged peaches. (https://www.canr.msu.edu/news/2016_michigan_peach_harvest_date_prediction)

For Belchertown, $x = 383$. So, the formula: $-0.0386(383) + 234.9 = -14.8 + 235 = 220$. August 8 is 220 Julian calendar days out from January 1, so that is when we will be harvesting Redhaven peaches in earnest.

I note these dates are not far from what we would expect the long term average harvest dates to be, so maybe this is all an exercise in academic futility and shows I can still do Algebra, but there you go, it is documented, and if you were thinking harvest is right about on average timing, you are smarter than you think! :-)



Redhaven peach at UMass Orchard on
20-July, 2021



Lindamac McIntosh at UMass Orchard on
20-July, 2021

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.

Guest article

Gear Up for Foliar Analysis

Dan Donahue & Mike Basedow, CCE-ENYCHP, Eastern New York

Reprinted from Tree Fruit E-Alert, July 20, 2021 ([Eastern New York Cornell Commercial Horticulture Program](#))

A good sampling timing for foliar mineral analysis is 80-90 days post-full bloom, late July-early August for Hudson Valley sites, one week later for the Saratoga area, and two weeks later for the Champlain Valley. (Ed. note: most of MA is somewhere between Hudson Valley and Saratoga area.)

Foliar analysis provides a more accurate estimation of your orchard's nutritional status than soil analysis. However, at the very least your orchard soil should be tested every few years for pH, and for nutrient status pre-planting and when nutritional deficiencies are identified by either visual observation or foliar analysis.

A sample consists of a minimum of 30 leaves from the middle of the current season terminal shoots. If sampling is done later in the season, select the first full-sized mature leaf behind the shoot tip. Select 1-2 leaves per shoot from several shoots on each of trees located throughout the area being sampled. A minimum of 50 grams (~ 2 oz) fresh weight is needed. Select shoots that are well exposed to light and are of average vigor (length and diameter) from the trees in the planting. Wash the samples with distilled water to remove pesticide and foliar nutrient residues.

Foliar analysis shows how effectively the tree is moving essential nutrients from the root zone to the leaf tissue. Unfortunately for Honeycrisp growers with bitter pit issues, calcium status of leaf tissue is not a reliable predictor for bitter pit expression.

Here are links to two analytical laboratories which will conduct an accurate analysis, and make nutrient recommendations based on a database of research results:

[Dairy One Laboratories](#)

[Waypoint Analytical](#)

Choose a lab and review the sampling protocol, paperwork, and submittal instructions carefully. There will be a charge for each sample processed. Be sure to specify the crop, and for apples, the variety.

Dairy One will also want to know the orchard's soil type. The USDA NRCS offers a web-based application which will help you identify the predominant soil type in your orchard if you don't already have a soil map on paper or a soil survey book. [Click here to access the soil survey website.](#)

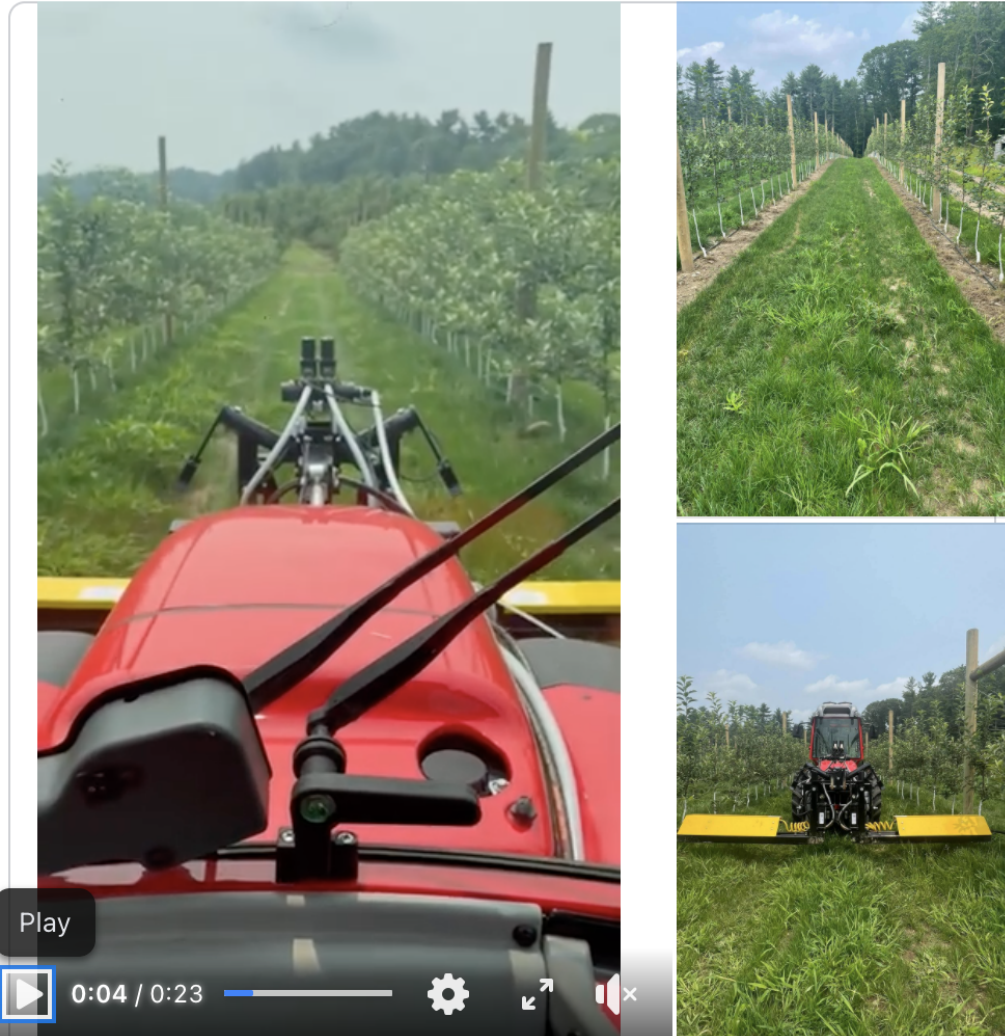
(Ed. note: other lab options include [University of Maine](#), [University of Connecticut](#), and [Pennsylvania State University](#).)

Facebook Me



Christian Smith shared a post.

1h · 🌐



Christian Smith is at C.N. Smith Farm Inc.

2h · East Bridgewater · 🌐

Spraying grass in new Apple planting. With twin spray boom on front of tractor!

👍 Arthur Kelly

3 Comments Seen by 17

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 August 3, 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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