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Prepared by the University of Massachusetts Fruit Program

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Jon Clements, Author (unless otherwise noted) and Editor

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Upcoming pest events

Coming events	Degree days (Base 43 BE)	Meaning?
Current (8/13) accumulation, Belchertown, MA	2868	July has been above average daily temperature, so I am guessing this is ahead of average too...
Apple maggot subsides	2772 to 3258	Apples should still be protected with insecticide from AMF egg laying, 1

		or 2 more sprays will be necessary (2 sprays for late varieties)
Codling moth 2nd flight subsides	2846 to 3462	Hopefully by now those with a history of CM damage have this well under control
Lesser appleworm 2nd flight subsides	2794 to 3488	?
Oblique-banded leafroller 2nd fight peak	2588 to 3007	Last chance for Altacor, Delegate, Exirel or similar if indicated, to target hatching larvae; be sure to rotate insecticide chemistry if previous generation treated
Oriental fruit moth 3rd flight peak	2650 to 3200	?
Redbanded leafroller 3rd flight start	2517 to 2950	Does not generally seem to be a problem?
Redbanded leafroller 3rd flight peak	2704 to 3174	Ditto
San Jose scale 2nd gen crawlers emerging	2746 to 2852	?
Spotted tentiform leafminer 3rd flight peak	2554 to 2995	Probably too late to do much about this given PHI's
White apple leafhopper 2nd gen adults 1st catch	2195 to 2521	Rarely specific treated-for, but if left to build up, can be a significant nuisance at harvest

Ag-Radar summary

Key insect life cycle and management dates

Note: for 2018, we have ten Massachusetts orchard locations subscribed to Ag-Radar: Amherst, Belchertown (2 locations), Brookfield, Deerfield, Easthampton, Groton, Leominster, Northboro, and Westhampton. The website for looking at AgRadar for these locations is: http://extension.umaine.edu/ipm/ag-radar-apple-sites/. What follows is the AgRadar summary for the Belchertown location.

Apple Maggot Fly (AMF) -- Rough guess of peak AM trap captures is: July 31, Tuesday. Estimated dates for first and peak trap capture are only general guidelines because the effect of rain on soil conditions is not included in the calculation.

Codling Moth (CM) -- Codling moth development as of August 13: 2nd generation adult emergence at 96% and 2nd generation egg hatch at 79%. 2nd generation 30% CM egg hatch: August 1, Wednesday = target date where one spray needed to control 2nd generation CM.

White Apple Leafhopper (WAL) -- 2nd generation WAL found on apple foliage: August 2, Thursday.

Preliminary McIntosh Harvest Date Forecasts -- Date to apply ReTain to delay first harvest for apples which without treatment would be ready for storage harvest on September 6 is from Thursday August 9 to August 16. Date to apply ReTain to delay maturity for 2nd, 3rd or 4th pick of those apples, without delaying start of harvest maturity, is from Thursday, August 23 to August 30. Begin measuring actual McIntosh starch-iodine index no later than Saturday, August 18. The Michigan formula estimates that non-spur McIntosh will reach starch index 4.0 and start the optimum harvest window for long term storage on Thursday, September 6. Using the Hudson Valley NY formula from Cornell Bulletin 221 'Predicting Harvest Date Windows for Apples,' McIntosh maturity is forecast to reach starch index 6.0 in Belchertown-ColdSpring MA on Tuesday, September 22.

Upcoming meetings

No fruit-related meetings I know about...

The way I see it

Jon Clements

A few points that keeps me awake at night…

- This weather surely can't be good for apple condition. Be prepared to start harvest early, watch for drop, and expect large, softer apples (that don't necessarily handle well). The time for first ReTain application(s) to McIntosh is rapidly approaching.
- Calcium sprays, ramp them up. Large fruit and abundant vegetative growth with all the rain compete (successfully) for calcium over the fruit -- see the Fact Sheet F119R - Foliar Calcium Sprays for Apples.

- Jerseymac have been picked (with significant drop observed), Gingergold are being spot picked (a bit early), Zestar! are coloring up a bit (but are not ready yet), and watch Premier Honeycrisp (if you have them), already being harvested in Pennsylvania (pickers wearing hip boots)
- Apple maggot fly and oblique banded leafroller, be sure to read The Jentsch Lab recent blog post on dealing with OBLR, some years we see way too much damage from this pest!
- Is that all? Probably not, but I need some sleep...

Insects

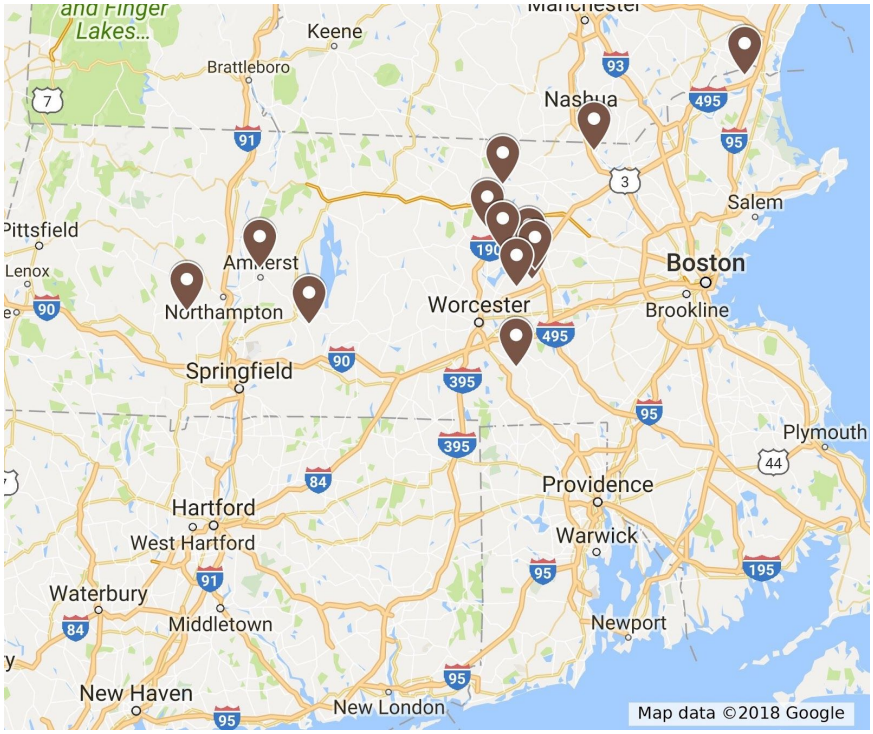
Jaime Pinero and Liz Garofalo

Brown Marmorated Stink Bug and Spotted Wing Drosophila Updates

BROWN MARMORATED STINK BUG (BMSB).

In 2018 the UMass Fruit Team, with the help of local Crop Consultants, has continued to monitor for BMSB around the state. Traps have been placed in various crops to include raspberries and apples. So far this year, a total of 2 adults and 3 nymphs have been confirmed in our trapping network. Additional BMSB have been observed in known “hotspots” on the UMass campus as well as in homes throughout the state. Thus far we have not captured more than one adult or

nymph in any given trap over a week's period of time.



2018 MA BMSB trapping sites.

While BMSB has not reach damaging populations in MA yet, it is advisable to learn about IPM options for this invasive pest. IPM recommendations for BMSB in specialty crops such as orchard fruit have been developed by researchers across the country. Summaries of specific options that have been developed for grapes, orchard crops, and vegetables, are available at: http://www.stopbmsb.org/managing-bmsb/management-by-crop.

I. ECONOMIC THRESHOLDS. An economic threshold is basically the density of the pest triggering a control method, usually insecticides. If left untreated, economic losses due to pest damage may occur. In specialty crops such as apples, researchers in West Virginia and Maryland have just developed a provisional threshold of 10 BMSB accumulated in one pheromone-baited trap located within the orchard or at the orchard border. Once this threshold is reached two alternate-row-middle sprays with 7 days between reduced the number of BMSB-targeted sprays while maintaining good control.

II. MONITORING. Commercially available traps and pheromone lures for BMSB monitoring provide valuable information on presence/absence of BMSB and also help to decide if insecticide treatments are needed to manage this pest. Ag-Bio, Inc. (http://www.agbio-inc.com), Great Lakes IPM (http://www.greatlakesipm.com), Trece, Inc. (http://www.trece.com) and Sterling International are some of the companies that sell monitoring systems for BMSB.

Pyramid traps. Stink bugs, including BMSB, are visually attracted to tree silhouettes. The trap recommended for monitoring is a pyramidal trap, which represents trunk mimic, coupled with a capturing device. Researchers are trying to assess whether yellow sticky cards, which are easier to deploy, can be used for monitoring purposes.

Pheromone lures: Various companies are now marketing the male-produced aggregation pheromone of BMSB. Research has shown than when this pheromone lure is combined with another lure termed 'MDT lure' which is also commercially available, the result is increased response by BMSB adults and nymphs, thereby increasing the efficacy of monitoring traps. The pheromone lure that is being used in Massachusetts is called "Stink Bug Xtra Combo - Broad Spectrum 5-7 week lure". It has been reported to attract multiple stink bug species such as Brown, BMSB, Conchuela, Consperse, Dusky, Green (*Acrosternum*), Harlequin, and Red Shouldered stink bugs. Therefore, efforts need to me made to correctly distinguish BMSB from other similarly-looking stink bugs.

When should I start monitoring for BMSB? Learning about the life cycle of insect pests is important to design effective IPM tools and strategies, including timing of monitoring. BMSB spend the winter as adults. After emerging from overwintering sites in May and June, BMSB adults begin mating and laying eggs on various host plants. Tree-fruit is very attractive to this pest. Monitoring for BMSB can start in late-May, and needs to continue until early- or mid-October.

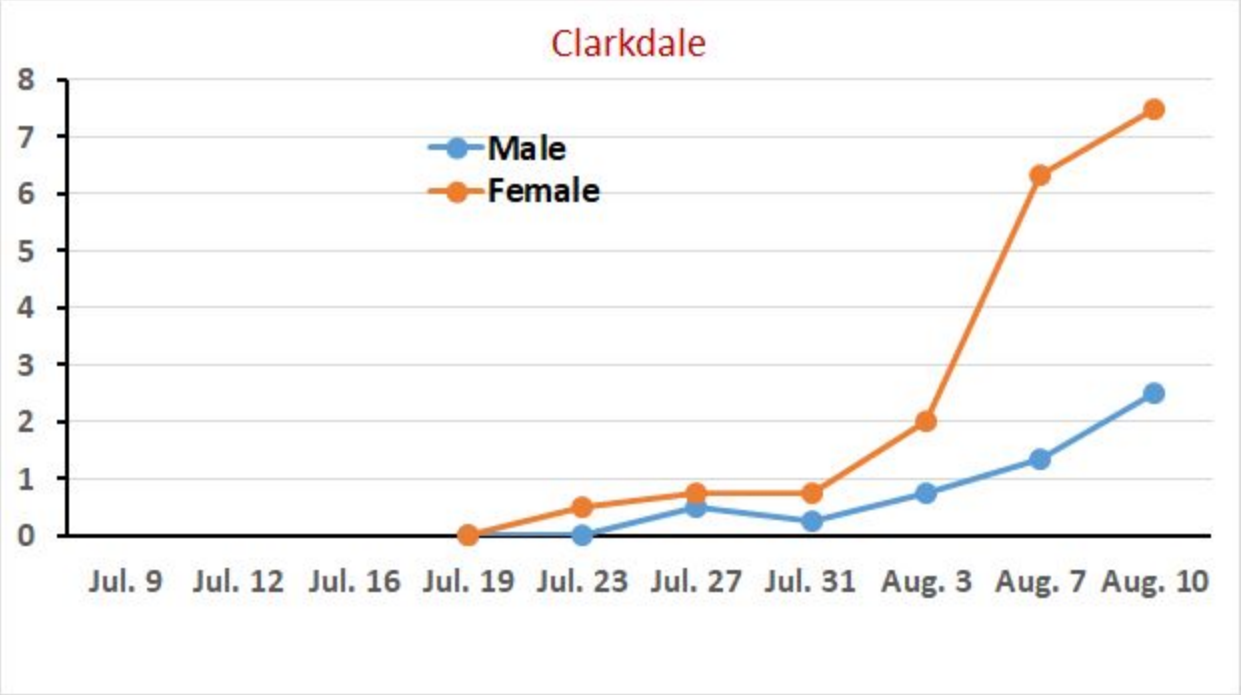
III. CHEMICAL CONTROL. Insecticide sprays is the most effective control method for BMSB. It is important to select effective insecticides given that adult BMSB are hard to kill. Whenever possible, target the nymph stage, as nymphs are more sensitive to insecticides than adults.

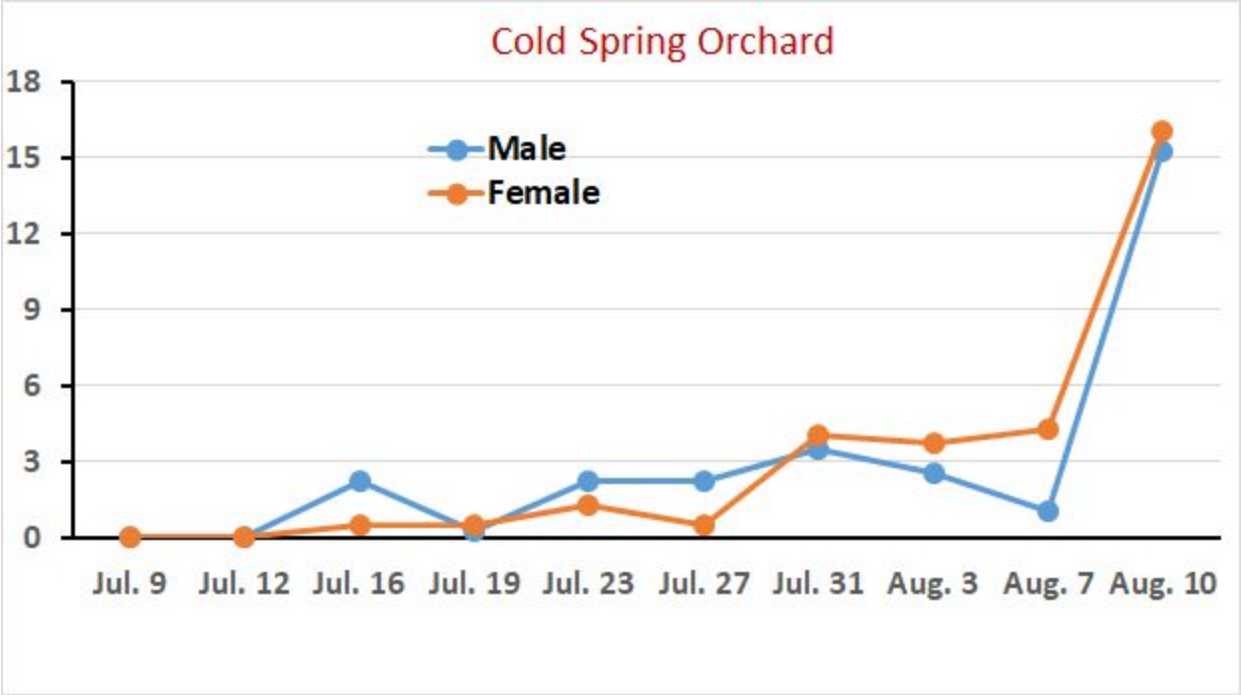
While insecticide recommendations vary according to availability on different crops, Actara, Brigade, Danitol, Mustang Maxx, and Lannate have shown good efficacy in trials; however, multiple applications may be needed with reinfestation. Specific insecticide recommendations can be found in the production guide for the various types of crops.

SPOTTED WING DROSOPHILA (SWD).

Populations of SWD have increased sharply in the last 10 days or so. The two graphs below show the mean number of males and females captured by traps baited with commercial juices, as part of field experiments that are being conducted at Clarkdale and at the UMass Cold Spring Orchard. Research findings will be presented in the next issue of ***Fruit Notes***. If you are not a subscriber, you can get the electronic copies of Fruit Notes here: https://www.umassextensionbookstore.com/products/106. If you would like to get printed copies, use this link instead: https://www.umassextensionbookstore.com/products/210.

More information on SWD biology and management is available at the UMass Extension Fruit program: http://ag.umass.edu/fruit/resources/spotted-wing-drosophila





Do you have any suggestions for articles on arthropod IPM? Please let me know!

Contact info: jpinero@umass.edu; (413) 545-1031 (campus office); (808) 756-2019 (cell).

Diseases

Ed. note: Dan Cooley has gone off and bought himself a BMW motorcycle (late life crisis!) so I imagine disease management is not exactly a priority of his right now. So, no major updates, nothing has really changed, but a couple good pre-harvest fungicide applications of Pristine (or similar) especially on Honeycrisp is advised for fruit rots and to keep sooty blotch and flyspeck at bay. Consult the Apples Summer Spray Table in the New England Tree Fruit Management Guide for fungicide options and be sure to rotate fungicide chemistry applications as best you can. Check out this nice Apple Fungicide Efficacy table too. Also, ripe peaches need ongoing fungicide applications for brown rot. Let's hope for some dry weather soon… JC

Horticulture

Jon Clements

ReTain, the rest of the story

In this Special ReTain Edition of Healthy Fruit, Dr. Duane Greene laid out the basis for using ReTain on McIntosh, Cortland, and Honeycrisp apples to maximize harvest efficiency and fruit quality. Please read it if you haven't already. Here, I will give you a few extra ReTain pointers based on my experience with ReTain (going back 25 years) but mostly with some help from Jim Wargo (Valent) and Win Cowgill (Rutgers retired and Win Enterprises LLC).

Label -- use up to 2 pouches per acre, single or split applications, 28 to 7 days before harvest (7 day PHI); don't forget the organosilicone surfactant at 0.05 to 0.1% (1/20th to 1/10th of one percent, or 6.5 to 13 fl oz. per 100 gallons spray water, do not concentrate)

Effect -- ethylene production reduced, starch to sugar conversion slowed, fruit softening slowed, fruit drop, cracking and greasiness reduced/delayed, red color development delayed (some varieties in particular)

Harvest -- more orderly harvest of single varieties like McIntosh in large orchards/blocks, keeps apples on trees for longer time for PYO, maintains fruit quality longer, improves yield (less drop)

Gala -- one half to 1 pouch per acre 21 days before harvest to reduce cracking and greasiness, but may delay color development; alternately can be used at 1 pouch per acre 7 to 14 days before harvest to allow color to come on before application

Honeycrisp -- one-half to 1 pouch per acre 21 days before harvest primarily for drop control, higher rate may delay color development; to extend harvest window, apply again at one-half to 1 pouch 7 days before harvest; if color of concern, skip 21 days application and just apply at 7 days before harvest, higher rates will delay maturity longer

McIntosh -- typical for harvest management/drop control is 1 pouch per acre 14 to 21 days before harvest; if additional drop control is desired, apply again at 7 days before harvest; if color development is of real concern (Rogers McIntosh?), do a half-rate application 14 days before harvest, perhaps followed up with another half-rate application 7 days before harvest

Delicious -- 1 pouch at 21 to 28 days before harvest is standard; split applications (one-half to 1 pouch) can be made to further enhance quality and drop control, up to 7 days before harvest

Empire -- 1 pouch at 21 days before harvest will do the job!

NAA -- Pomaxa/Fruitone/Refine (4 oz per acre) can be added to final ReTain application to Gala, McIntosh, Honeycrisp and Delicious for additional (and sometimes temporary) drop control, however, results can be mixed (better be ready to pick ASAP)

Peaches -- 1 pouch per acre 10 to 14 days before first pick can increase firmness, extend the harvest window with fewer picks, increase size, and reduce drop; read label for more specifics

Pears -- apply 1 pouch per acre, similar to apple, delays maturity, reduces drop, increases size and firmness; for Bartlett, timing is 7 to 10 days before start of harvest, but for best drop control apply 14 to 20 days before harvest; for Bosc, apply 14 to 16 days before harvest; see label for more information

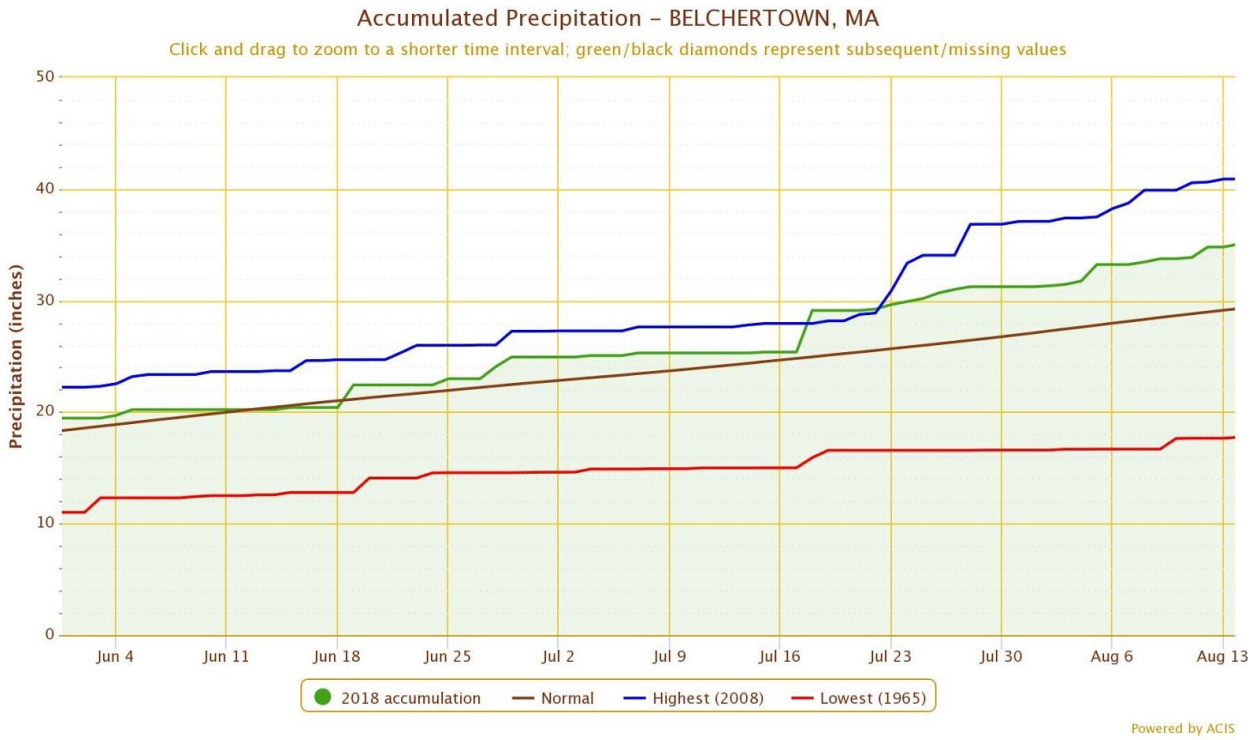
Gotcha's -- ReTain won't work well if trees are under drought, mite, leafminer, or otherwise stress (too much water such as we are seeing this year should not be a problem); ReTain really needs a few hours of drying to work, if it rains/pours an hour after application you may have just wasted your time and money; don't forget the organosilicone surfactant, use 6.5 to 13 fl. oz. per 100 gallons of spray water (don't concentrate), use higher surfactant rate where more ReTain efficacy desired, lower rate if color development is a concern or where drop control is not the primary objective; surfactant can enhance uptake of calcium chloride foliar spray and result in some foliar damage if the calcium spray is applied in proximity to the ReTain application (certainly you don't want to tank mix them); finally, the benefits probably outweigh the risks, but consider the fact hanging fruit longer on the trees opens them up to weather-related risks, hail, hurricane (not that there would not be bigger problems!), etc., just keep it in mind, all things being equal getting all fruit off the trees (and preferably sold!) ASAP is good risk management...

Hawkeye's corner (notes from the field)

Liz Garofalo

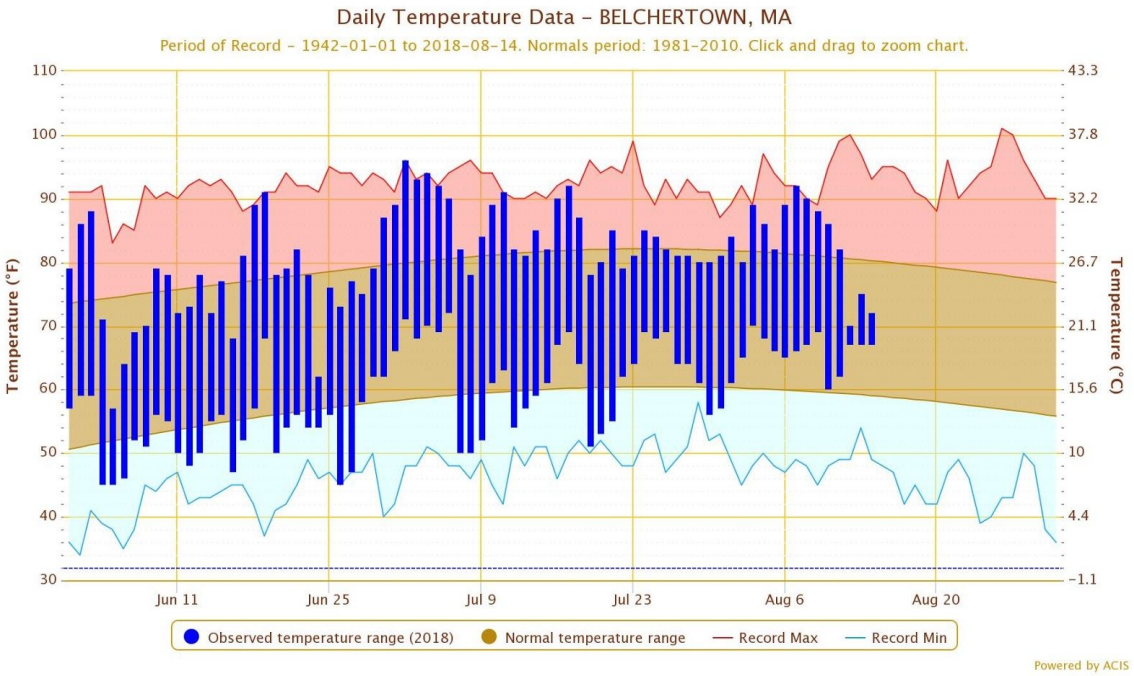
Marconi beach overlook, Wellfleet, MA.

Can you believe how *few* fruit trees there are at the beach?! It's almost as if I was on vacation last week. As such, the only field observation I have is: wow its rained a lot!



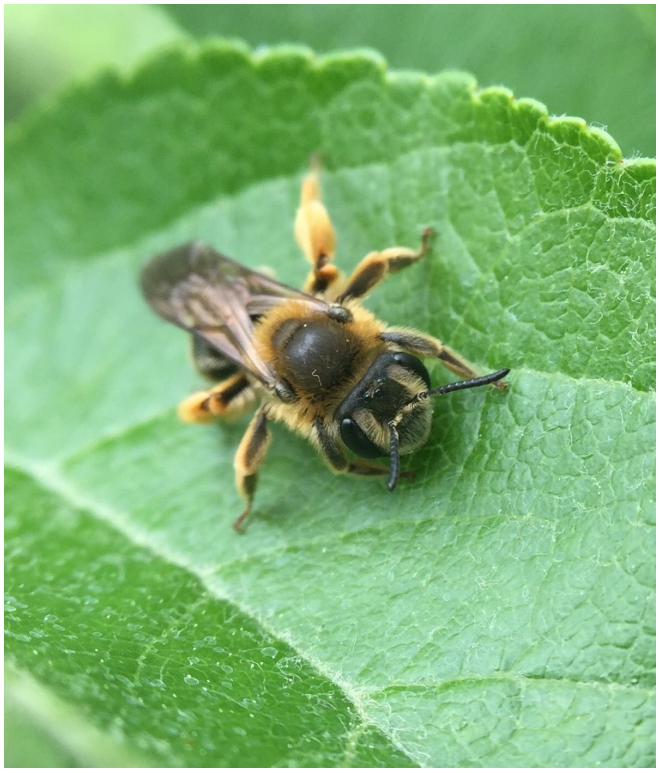
Note: this graph is a snapshot of the whole year, values pictured are accumulated from Jan.1

Over the last two weeks, in Belchertown, we have accumulated 1.26” more rain than average. Since June 1, Belchertown has accumulated 4.58” more rain than average. And while it seems that the last few days have been non-stop, the most rain we have had in one shot this summer was on July 18 when we got 3.73”. Not quite Ark building weather but pretty darn close. Precipitation amounts aren’t’ the only thing on the rise.



Temperatures, for the last few days at least, have been fairly normal. However, since June 1, we have seen an average temperature increase of "only" 1.612℉… I'll spare you the obvious commentary about temperatures increasing. On average, in Belchertown, we are up .803℉ for the whole year.

Both maps and climate data were accessed using NOAA Regional Climate Center's ACIS database.



Don’t forget to check out Ag-Radar’s Honey Bee Activity Chart!

Guest article

No Guest article this week...

Facebook Me

Christian Smith
Yesterday at 10:52 AM ·

Zestar.

Maurice Tougas, Peter Mitchell and 9 others — 1 Comment 1 Share

Like · Comment · Share

Jon Clements I guess that answers my previous question...

Like · Reply · 22h

Write a comment...

Useful links

UMass Fruit Advisor: http://umassfruit.com

Scaffolds Fruit Journal: http://www.nysaes.cornell.edu/ent/scafolds/

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

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Acimovic Lab at Hudson Valley

Peter Jentsch's Blog

The next Healthy Fruit -- and it will be the first apple maturity report -- will be published on or about August 28, 2018. 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

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