



## Healthy Fruit, Vol. 23, No. 14, July 28, 2015

Jon Clements, Author (unless otherwise noted) and Editor

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### Current degree day accumulations

UMass Cold Spring Orchard, Belchertown, MA	27-July
Base 43 (SkyBit)	2,193
Base 50 (NEWA)	1,658

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### Upcoming pest events

Coming events	Degree days (Base 43)
Spotted tentiform leafminer 2nd flight subsides	1994-2366
STLM 2nd gen. tissue feeders present	1378-2035
STLM 3rd flight begins	2263-2647

Apple maggot flight peak	2115-2655
Apple maggot 1st oviposition punctures	1605-2157
Oriental fruit moth 2nd flight subsides	2066-2548
Oblique banded leafroller 2nd flight begins	2248-2640
Redbanded leafroller 2nd flight subsides	2177-2731
Dogwood borer flight peak	1477-1895
Codling moth 2nd flight peak	1956-2722
Dogwood borer flight peak	1477-1895

## AgRadar

### *Key insect life cycle and management dates*

Note: for 2015, we have five Massachusetts orchard locations subscribed to AR: Belchertown, Groton, Phillipston, Stow and Sutton. The website for looking at AgRadar for these locations is: <http://extension.umaine.edu/ipm/ag-radar-apple-sites/>. What follows is for the Belchertown location.

**Dogwood borer (DB)** -- First dogwood borer egg hatch roughly: June 24. Peak hatch roughly: July 30.

**Codling moth (CM)** -- 1st generation, first sustained trap catch biofix date: May 16, Saturday. Codling moth development as of July 2: 1st adult emergence at 70% and 1st generation egg hatch at 16%. In most orchards, insecticide targeted against plum curculio and apple maggot prevent codling moth damage. If targeted codling moth control is needed, key management dates are shown here: 1st generation 3% CM egg hatch: June 20, Saturday = target date for first spray where multiple sprays needed to control 1st generation CM. 1st generation 20% CM egg hatch: July 4, Saturday = target date where one spray needed to control 1st generation CM.

**Lesser appleworm (LAW)** -- 2nd LAW flight begins around: July 11, Saturday.

**Obliquebanded leafroller (OBLR)** -- 1st generation OBLR flight begins around: June 9, Tuesday. Early egg hatch and optimum date for initial application of B.t., Delegate, Proclaim, Intrepid, Rimon, Altacor, Belt, pyrethroid or other insecticide effective against OBLR (with follow-up applications as needed): June 23, Tuesday. Where waiting to sample late instar OBLR larvae to determine need for treatment is an option, or to check on results from earlier sprays: Optimum sample date for late instar summer generation OBLR larvae: July 4, Saturday  
If first OBLR late instar larvae sample is below threshold, date for confirmation follow-up: July 7, Tuesday.

**Oriental fruit moth (OFM)** -- 1st generation OFM flight starts: May 5, Tuesday; 1st generation 55% egg hatch and first treatment date, if needed: May 26, Tuesday. 2nd generation OFM flight begins around: June 28, Sunday. 2nd generation - first treatment date, if needed: July 6, Monday. 2nd generation - second treatment date, if needed: July 18, Saturday.

**Redbanded leafroller (RBLR)** -- 2nd RBLR flight begins around June 29, Monday. Peak catch and approximate start of egg hatch: July 12.

**Spotted tentiform leafminer (STLM)** -- 2nd STLM flight begins around: June 15, Monday. Rough guess of when 2nd generation sap-feeding mines begin showing: July 5, Sunday. Optimum first sample date for 2nd generation STLM sap-feeding mines is July 12, Sunday. Second optimized sample date for 2nd generation STLM sapfeeding mines, if needed: July 18, Saturday. Third optimized sample date for 2nd generation STLM sapfeeding mines, if needed: July 28, Tuesday.

**Preliminary McIntosh harvest date forecasts** -- 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 Saturday, September 5. Using the Hudson Valley NY (Cornell) formula, McIntosh maturity is forecast to reach starch index 6.0 in Belchertown, MA on Wednesday, September 23, which is the end of the optimum harvest window for long term storage. To delay single pick harvest up to 7 to 10 days, apply ReTain 21 to 28 days prior to beginning of expected harvest date for untreated fruit. To delay fruit maturity and improve storage potential of later picked apples (2nd, 3rd, 4th picks), apply ReTain 7 to 14 days prior to beginning of expected harvest date for untreated fruit. This later timing will not delay the start of harvest (1st pick), but will delay maturity for later picks. Date to apply ReTain to delay first harvest for apples without treatment would be ready for storage harvest on September 5 is from Saturday August 8 to August 15. Date to apply ReTain to delay maturity for

2nd, 3rd or 4th pick of those apples, without delaying start of harvest maturity, is from Saturday August 22 to August 29.

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## Upcoming meetings

New England Vegetable & Fruit Conference, December 15-17, 2015, Radisson Hotel - The Center of New Hampshire, Manchester, NH. <http://www.newenglandvfc.org>

For more information and updates, see [Upcoming Events](#) or contact Jon Clements, 413-478-7219.

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## The way I see it

The growing season has peaked and it will start winding down soon. Apples are coloring (somewhat) and early peach harvest is underway. Based on a formula out of Michigan State University, Redhaven peach harvest (the middle of peach season) will begin about August 4. Be sure to protect ripening peaches from brown rot with fungicide spray(s). See these excellent two articles out of Rutgers on peach/nectarine brown rot management: part 1 <http://plant-pest-advisory.rutgers.edu/brown-rot-management-in-a-wet-growing-season-part-i/> and part 2 <http://plant-pest-advisory.rutgers.edu/brown-rot-management-in-a-wet-growing-season-part-ii/>

Using the Central NY formula for predicting the last harvest date for McIntosh apples destined for CA harvest at the UMass Orchard in Belchertown, the result is September 20. This is when starch index is predicted to be 6. (See [Predicting Harvest Date Windows for Apples](#).) The harvest window for McIntosh is typically when the starch-index is 4 to 6, and that is predicted to be September 5 (according to [AgRadar](#)). Hence, a 12 day harvest window to pick McIntosh apples for long-term storage. Of course the retail, economic, fresh market, PYO window for McIntosh apples is typically longer. (About 3 weeks.)

Main insect pests of concern would be **apple maggot** (peaks in early- to mid-August) and **codling moth** (2nd generation flight and egg laying beginning). I don't know if your orchard typically has a problem with these pests, so you need to monitor and make insecticide treatments as appropriate. Visiting the [NEWA website](#) and using a weather station location near you is the best way to time insecticide applications, assuming you are monitoring.

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## Insects

### Brown marmorated stink bug (BMSB) update from Arthur Tuttle, UMass eIPM team

For the 3rd year in a row, our UMass Extension IPM grant is supporting trapping and monitoring of the brown marmorated stick bug (BMSB), a relatively new invasive bug for Massachusetts. This year we have traps at 15 sites (mostly farms). Our colleagues in Barnstable County Extension have a few more on Cape Cod. Our network includes growers, Extension professionals, private crop consultants, and an MDAR scientist. We are using the [green/clear "rocket" traps](#) (hung in the canopies) and the black plywood "pyramid" traps (placed on the ground). Traps are baited with two lures (the mixed-isomer BMSB aggregation pheromone lure plus the MDT lure) and checked each week. Lures are changed every 5 weeks. We started trapping in late June and will continue through Sept. As of July 27, we have not trapped any adults or nymphs. A few adults have been sighted and reported to us or to MDAR over the past few months. These were in back yards and around homes. We continue to watch carefully as BMSB populations increase gradually in the Hudson Valley in woods near crop land and growers begin to apply insecticides to border rows in apples. Some good news: our colleagues to the south have reported that a beneficial insect that lays its eggs inside the BMSB eggs has been sighted in a few locations in the Mid-Atlantic region. This egg parasitoid is also native to Asia and is being studied under quarantine at the USDA for possible release to help manage BMSB. For more information, visit the [UMass Extension Fruit Program BMSB page](#) or [StopBMSB.org](#)

Ed. note: we would appreciate hearing about any possible sightings of BMSB in your orchard. There are look-alike stink bugs, particularly the brown (native) stink bug, so check this out: <http://www.stopbmsb.org/stink-bug-basics/look-alike-insects/>

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## Diseases

Other than brown rot management for peaches and nectarines as referenced above, **sooty blotch/flyspeck** and **rots** of apple (aka **summer diseases**) are top of the list right now. (Although I did recently find some nice mildew on Honeycrisp the mildew magnet, [see it here](#), but right now you need to focus on mildew management next spring.) There are two online tools to help you manage (i.e. time) your summer fungicide program for summer diseases, [AgRadar](#), and [NEWA](#). AgRadar says you need to maintain "continuous fungicide coverage" until app. 30 days before harvest. "Continuous fungicide coverage" depends on type of fungicide used and how much rain there is between applications. Fungicides are basically batched into two groups: the protectants Captan and Ziram (Group B); and fungicides with after-infection activity such as Pristine, Topsin-M, Flint, captan + phosphite (Group A). Group B is good for a 14 day (2 week) spray interval OR 1.5 inches of rain, whichever comes first. Similarly, Group A is good for 21 days (3 weeks) between sprays OR 2.0 inches of rain. Pretty simple. AgRadar presents comprehensive tables predicting fungicide depletion and when it is time to re-spray. For example, see the [\\*FLYSPECK\\* tables for Belchertown](#). NEWA takes a slightly different approach. For example, using NEWA and assuming a last spray date of 14-July, then MODERATE RISK is predicted beginning 28-July (today) and if rain is forecast for 2 or more days, it is time to apply an appropriate fungicide (pictured). Please take the time to learn and use these weather-based IPM tools for more effective summer disease management. If any questions, contact Dan Cooley or myself.

**Most recent fungicide application date:**   
*If petal fall has passed, enter the date of your most recent fungicide application.  
 If no fungicide applications have been made, do not enter a date.*

In the Risk Summary table, note the accumulated leaf wetness hours since petal fall (Leaf Wetness Hours) and the Risk Level. Leaf wetness hours, rain events, and the last fungicide application date are taken into consideration in assessing risk level. To estimate risk in the near future, look at the probability of rain.

Consult the Risk Level IPM Guidelines below the **Risk Summary** table.

<b>Sooty Blotch and Flyspeck Risk Summary - Northeastern US Model</b>								
	Past	Past	Current	5-Day Forecast			Forecast Details	
Date	Jul 26	Jul 27	Jul 28	Jul 29	Jul 30	Jul 31	Aug 1	Aug 2
Days since petal fall	76	77	78	79	80	81	82	83
Accumulated Leaf Wetness Hours - ALWH	349	349	355	355	361	361	361	361
Risk Level	Low	Low	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
<b>Rain Events and Fungicide Depletion Estimate</b>								
Days since last fungicide application	12	13	14	15	16	17	18	19
Rain since last fungicide application	0.33	0.33	0.33	0.33	0.39	NA	NA	NA
Daily rain amount (inches)	0.06	0.00	0.00	0.00	0.06	NA	NA	NA
Rain probability (%) Night Day ?			- 21	6 13	7 35	36 2	2 3	4 3

NA - data not available.

Download Time: 7/28/2015 14:00

**Risk Level IPM Guidelines for Sooty Blotch and Flyspeck:**

- **NO RISK** - No action needed.
- **LOW RISK** - If first cover application has not been made, make first cover fungicide application for apple scab. Otherwise, no action needed.
- **MODERATE RISK** - Check the 5-day forecast; a cover application should be made if two or more days with precipitation are predicted. See Fungicides below.
- **HIGH RISK** - A cover application for Sooty Blotch and Flyspeck should be made. See Fungicides below.

## Horticulture

Now is the best time to collect leaf samples for nutrient analysis. Please visit the [UMass Soil and Plant Tissue Testing Laboratory](#) for forms and instruction on submitting samples. Samples should be collected by mid-August at the latest.

## Guest article



### A fresh look at IPM on diversified farms in Massachusetts from a member of the UMass eIPM fruit and vegetable team

Elizabeth Garofalo, M.S. student, Stockbridge School of Agriculture, Integrated Pest Management

Pictured, left, Sonia Schloemann and Elizabeth Garofalo present IPM management strategies on diversified fruit & vegetable farms (UMass eIPM) at the Massachusetts Fruit Growers' Assoc. Summer Meeting at Red Apple Farm, Phillipston, MA

IPM is something that we at UMass have been advocating for many years now. More to the point though, most, if not all, of the growers present here already use one form of it or another. From performing PADs, making use of sanitation practices and consulting pest forecast models, to making use of various insect traps to determine pest presence and pressure, you are using multiple tools to reduce the amount of pesticides applied to your crops with an end goal of saving you time and money while still producing quality fruits — exactly at least one definition of IPM.

One of the challenges that we all face in implementing this is the threat of invasive insects, especially ones that are difficult to control, whether it be from population size (the SWD tsunami) or because they exhibit resistance to the lower risk pesticides that many have been trying to use. This is why we have, once again, set up a BMSB monitoring network. We have traps at 15 different locations throughout the state being monitored by the UMass fruit team as well as consultants, other government agents, and growers. We are using both the green “rocket” traps and the black pyramid traps. The pheromone is an aggregation pheromone that can pull the pests in from as far away as 50 ft., depending on temperature, wind direction and population density. When applying insecticide to control this pest, growers are forced to rely on pyrethroids and organophosphates. These materials have been shown to have a significantly negative impact on beneficial insect populations. But, there is some good news on the horizon! Firstly, we have yet to see numbers or damage from this pest that resembles what growers have been facing in the Mid-Atlantic and Southern NY State areas. This is why we continue to trap and monitor for the presence of BMSB. Secondly, a parasitic wasp native to the same region (in Asia) as the BMSB is being studied. In 2014, this parasite was discovered free-living in Maryland. It is not known at this time if this wasp can overwinter and continue to feed on BMSB, its preferred meal. It has been noticed this year, though not officially reported yet, that trap captures for BMSB in the mid-Atlantic are down for this time of year. It is unclear if this is due to winter kill or the presence of the parasitoid.

There are, of course other pests that we work with our mentor and partner farms to manage. We have spent the last few weeks scouting for many different pests using pheromone traps and monitoring for damage. Pheromone traps, much like the ones used for BMSB, alert us to the presence of a given pest be it OFM, CM or OBLR as well as give us guidelines based on action threshold numbers by which to advise the growers we are working with on whether or not treatment is

needed and how to treat. More importantly, these traps also help us determine the biofix, or first trap capture date, for a given pest, this date can be used to calculate Degree Days to estimate key life cycle periods, further enhancing the efficacy of spray programs when a spray is warranted. Monitoring for damage, and often the physical presence of a pest within a crop, is another useful way to determine whether or not treatment is necessary based on the population density of a given pest. This is when we will see pests like leafhoppers and aphids. This is also a good time to determine if an orchard has scab or fire blight. We are not only looking for the bad guys though! Similar to the thresholds for pest insects, there are thresholds for predatory, beneficial insects as well. Keeping an eye out for things like lady beetle larva, wheel bugs and lacewings, just to name a few, can be just as important as determining the pests you have. These predatory insects can save you time and money in unmade spray applications.

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## Facebook Me

Follow me (jmcextman) on FB: <https://www.facebook.com/jmcextman>



**Clarkdale Fruit Farms**

1 hr · 🌐



Apricots are in stock today!



12 Likes 1 Comment



👍 Like

💬 Comment

➦ Share

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## Youtu.be

Spraying Raynox® (Valent Agricultural Products) to prevent sunburn on Zestar!® apples at UMass Cold Spring Orchard, 28-July, 2015

## Preventing sunburn on apples



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### Useful links

[Index of Healthy Fruit](#) (2015, 2014)

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>

[New England Apple Decision Support System maps](#) (experimental)

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

UMass Vegetable & Fruit IPM Network (on Facebook, <http://www.facebook.com/umassipmteam>)

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The next Healthy Fruit will be published on Tuesday, August 11 or thereabouts, 2015. As always feel free to get in touch with any member of the UMass Fruit Team (<http://extension.umass.edu/fruitadvisor/team-members>) if you have questions or comments.