Volume 21, Number 9. May 28, 2013.

Contents

Current degree day accumulations

Location: UMass Cold Spring Orchard, Belchertown, MA

	27-May, 2013
Base 43	594
Base 50	363

Upcoming pest events

Coming events	Degree days (Base 43)
Black cherry fruit fly first catch	702-934
Codling moth 1st flight peak	571-999

European red mite 1st summer eggs	447-555
European red mite summer eggs hatch	737-923
Lesser peachtree borer 1st catch	485-683
Oblique-banded leafroller pupae present	601-821
Redbanded leafroller 1st flight subsides	589-899
Spotted tentiform leafminer sap feeders present	343-601
Spotted tentiform leafminer 1st flight subsides	674-956

Orchard radar apple insect key dates

Here are insect key insect dates from Orchard Radar, Belchertown, MA.

Codling moth (CM) 1st generation, first sustained trap catch biofix date: May 16, Thursday. Codling moth development as of May 28: 1st generation adult emergence at 15% and 1st generation egg hatch at 0%. In most orchards, insecticide targetted against plum curculio and apple maggot prevent codling moth damage.

Obliquebanded Leafroller (OBLR) 1st generation OBLR flight begins around: June 8, Saturday. Where waiting to sample late instar OBLR larvae is not an option (= where OBLR is known to be a problem, and will be managed with insecticide against young larvae): 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 25, Tuesday.

Oriental Fruit Moth (OFM) 1st generation OFM flight starts: May 3, Friday. 1st generation 55% egg hatch and first treatment date, if needed: May 30, Thursday.

Plum curculio (PC) increased risk of PC damage as McIntosh and similar cultivars increase fruit size: May 22, Wednesday. Earliest safe date for last PC insecticide spray: May 31, Friday. If relying on repellance by Surround instead of PC mortality by insecticide, Surround coverage should be maintained until PC egglaying begins to naturally decline around Saturday, June 29.

Spotted Tentiform Leafminer (STLM) 1st generation sapfeeding mines start showing: May 20, Monday. Optimum sample date is around Wednesday, May 22, when a larger portion of the mines are visible.

European Red Mite (ERM) Optimum monitoring period for 1st generation ERM: Saturday, May 18 (Petal Fall) to Thursday, May 23 (early adults ready to lay eggs for 2nd generation)

Upcoming meetings

http://extension.umass.edu/fruitadvisor/upcoming-events

The way I see it

Primary on everyone's mind this week should be applying a chemical thinner where additional thinning is needed. It should be a very good time to apply a chemical thinner, i.e., it should work. If modest thinning is desired, a single application of carbaryl (Sevin @1-2 pint per acre), NAA (Fruitone-L @ 2-6 oz. per acre), or 6-BA (Maxcel @ 2 quart per acre) is indicated. If more thinning is desired, use a combination of most any two of above. **CAUTION: temperatures above 85-90 degrees F. can result in over-thinning! Use caution when applying growth regulators such as NAA or 6-BA when the forecast is hot! (Particularly 6-BA, i.e. Maxcel.)** Carbaryl is safer at these temperatures. See more on thinning under horticulture. Good luck, this will be your one best chance to get it right.

Insects

If applying petal fall or 1st cover sprays for plum curculio to apple blocks, **Oriental fruit moth (OFM)** should be covered. Otherwise, see the NEWA output below and the 2013 New England Tree Fruit Management Guide for more specific OFM control recommendations.

Oriental Fruit Moth Results for Belchertown

First Trap Catch: 5/1/2013

First Trap Catch date above is estimated based on degree day accumulations or user input. Enter the actual date for blocks of interest and the model will calculate the protection period after first trap catch more accurately.

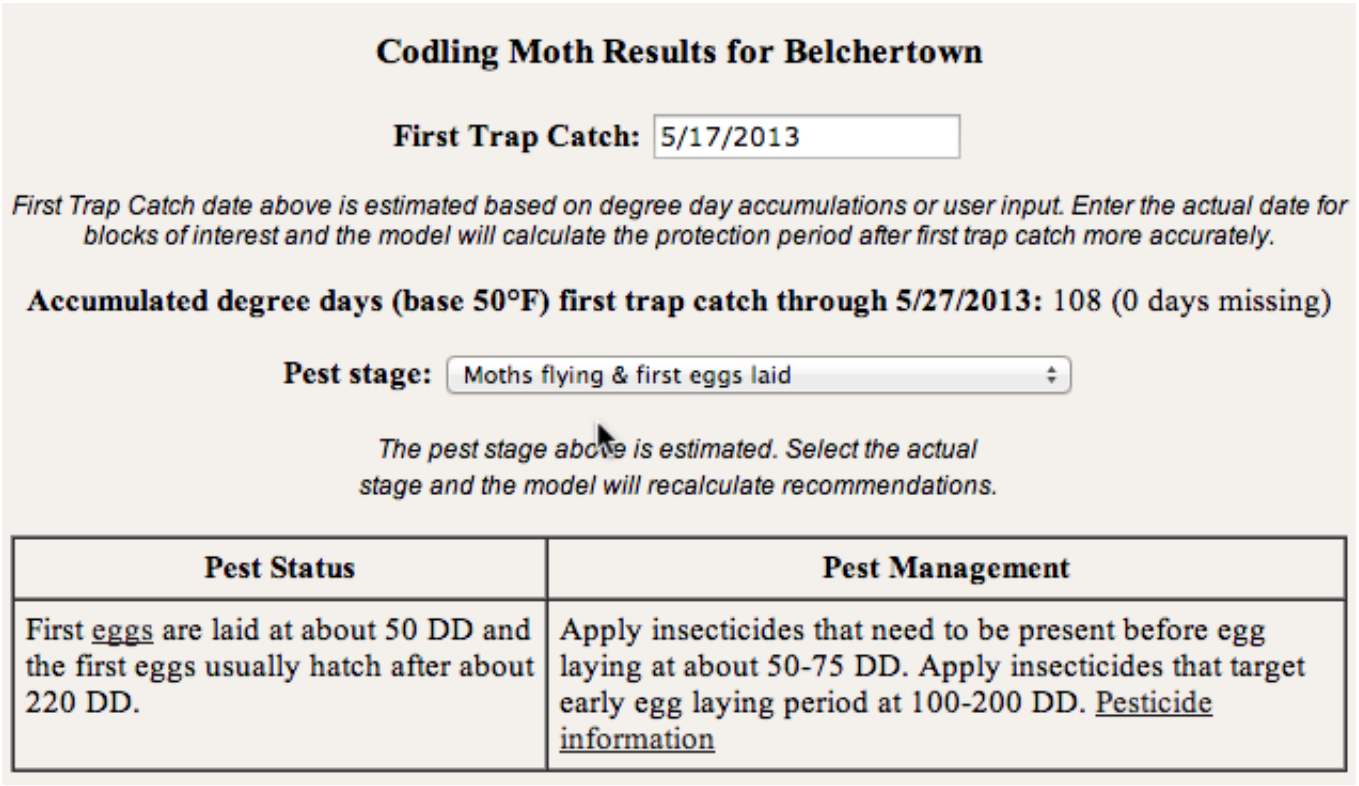
Accumulated degree days (base 45°F) first trap catch through 5/27/2013: 343 (0 days missing)

Pest stage: Moths flying & 50% of eggs have hatched

The pest stage above is estimated. Select the actual stage and the model will recalculate recommendations.

Pest Status	Pest Management
Moths are still flying and usually about 50-60% of OFM eggs from the first generation have hatched.	Check the time elapsed after petal fall to determine the exact timing of this second spray. This second spray should be applied at about 10-14 days after petal fall. This second spray against the first generation of OFM is particularly important in high-pressure orchards (past history of OFM fruit damage or high pheromone traps catches, (>10/ trap/ week) to control the remainder of hatching larvae. If this spray is applied at the normal time of a first cover spray (10-14 days after petal fall) it will also control early hatching CM larvae from the first flight of adults. Also, Plum curculio may still be active at this interval after PF in cool, rainy seasons. Pesticide information

If CM is a problem in your orchard, now is the time to apply insecticide sprays. See the 2013 New England Tree Fruit Management Guide for specific recommendations, however, Alatacor, Assail, Belt, Calypso, Delegate, Imidan, Lannate, Leverage, and Voliam Express EC are banner CM control insecticides.



Codling Moth Results for Belchertown

First Trap Catch: 5/17/2013

First Trap Catch date above is estimated based on degree day accumulations or user input. Enter the actual date for blocks of interest and the model will calculate the protection period after first trap catch more accurately.

Accumulated degree days (base 50°F) first trap catch through 5/27/2013: 108 (0 days missing)

Pest stage: Moths flying & first eggs laid

The pest stage above is estimated. Select the actual stage and the model will recalculate recommendations.

Pest Status	Pest Management
First eggs are laid at about 50 DD and the first eggs usually hatch after about 220 DD.	Apply insecticides that need to be present before egg laying at about 50-75 DD. Apply insecticides that target early egg laying period at 100-200 DD. Pesticide information

Plum curculio (PC) are still very active and will be increasingly so as the weather warms this week. At 99 DD's, we are about one-third of the way to 308 DD's when control measures will no longer be needed. Below is the current NEWA status. Needless to say, insecticide coverage is necessary beginning NOW until the risk of damage is over. Actara, Avaunt, Calypso, Imidan, Leverage, and Voliam Express EC all have good-excellent efficacy. Note that a full rate of Sevin used for thinning, at least 2 quarts per acre, will give fair curculio protection.

Plum Curculio Results for Belchertown

At petal fall, fruit become susceptible to feeding and oviposition injury. Control measures are only needed until 308 degree days have accumulated since petal fall.

90% petal fall on McIntosh apple: 5/18/2013

Petal Fall date above is estimated based on degree day accumulations or user input. Enter the actual date for blocks of interest and the model will calculate the protection period after petal fall more accurately.

Accumulated degree days (base 50°F) petal fall through 5/27/2013: 99 (0 days missing)

Pest stage: Adults ovipositing

The pest stage above is estimated. Select the actual stage and the model will recalculate recommendations.

Pest Status	Pest Management
Plum curculio (PC) adults will continue to damage fruit (example 1, example 2) and may be moving among trees. PC activity is highly dependent upon temperatures, particularly at night when adults are most active. PC usually do not feed or oviposit when nighttime temperatures are below 50 deg F. If the weather is extremely warm after petal fall, the oviposition cycle may be completed in 2 weeks. In cooler seasons, PC may continue to oviposit for 4-6 weeks.	A petal fall spray should control plum curculio (PC) for about 10-14 days. Incidence of observed PC damage is highly variable among different orchards. PC damage usually occurs primarily along the edges of commercial orchards, and noticeable damage occurs in the same locations in orchards year after year, regardless of treatment levels. Therefore, the potential for damage in any particular orchard can be predicted from past observations. Usually, a post-petal fall spray for control of PC is not necessary in low-pressure orchards in which no damage has been observed in the past. In high-pressure orchards, additional sprays along the perimeter of the orchards should be applied until the oviposition model predicts that control is no longer necessary. Pesticide information

Petal fall sprays also control **oblique-banded leafroller OBLR** (to a certain extent). Below is the current NEWA output and discussion for OBLR. As of today (5/28) we have caught no OBLR moths in pheromone traps at the UMass Orchard

Obliquebanded Leafroller Results for Belchertown

Accumulated degree days (base 43°F) 1/1/2013 through 5/27/2013: 655 (0 days missing)

Phenological stage: Post Petal Fall

The phenological stage above is estimated. Select the actual stage and the model will recalculate recommendations.

Pest stage: Overwintering larvae feeding

Pest Status	Pest Management
Overwintering larvae begin to feed on developing fruit and may cause some damage, although many fruit damaged at this time will drop off of the tree prematurely and not result in fruit damage at harvest. Fruit damage from overwintering larvae is usually relatively low (less than 5 percent).	Apply a control spray as soon as possible after petal fall to control overwintering larvae. Research studies in NY have shown that applying a single insecticide spray at either pink or petal fall is just as effective in controlling overwintering larvae and early fruit damage as applying two sprays (at pink and petal fall). Most currently available insecticides usually only reduce fruit damage from overwintering larvae by 40-60%. Usually, fruit injury from overwintering larvae is less than 5% at harvest, even if no control sprays are applied. Some studies have shown that controlling the overwintering larvae will reduce numbers of subsequent summer generation larvae and the average damage from the summer generation is usually lower than when control of overwintering larvae is omitted, particularly when large areas are treated. Plum curculio may also be a problem in some orchards at this time and many materials that are effective against OBLR do not control this pest effectively. Pheromone traps to monitor the first flight of OBLR should be deployed by June 1st. Pesticide information

Spotted tentiform leafminer (STLM) are quiet right now, but if you have a perpetual problem with STLM then you should have pheromone traps up to monitor the second flight per the NEWA output below.

Spotted Tentiform Leafminer Results for Belchertown

Accumulated degree days (base 43°F) 1/1/2013 through 5/27/2013: 655 (0 days missing)

Phenological stage: Post Petal Fall

The phenological stage above is estimated. Select the actual stage and the model will recalculate recommendations.

Pest stage: 1st generation tissue feeding mines and pupae in leaves

Pest Status	Pest Management
Older tissue feeding mines and pupae are present. The secpmd generation of moths will emerge between 700 and 1200 degree days after first trap catch.	Pheromone traps should be checked frequently to determine the biofix of the second flight. Usually, no treatments will be required to control the second generation of larvae if populations of first generation larvae are low or if effective control sprays have been applied against this generation.

Diseases

Regarding **apple scab**, indeed there was a major infection period beginning mid-week last week and more-or-less continuning through last Saturday. Below is the current NEWA output indicating ascopore maturity is at 99%.

Apple Scab Summary for Belchertown

	Past	Past	Current	5-Day Forecast				Forecast Details
	May 26	May 27	May 28	May 29	May 30	May 31	Jun 1	Jun 2
Ascospore Maturity	98%	98%	99%	99%	99%	100%	100%	100%
Infection Events	Yes	No	No					
Days to Symptoms	15	NA	NA					
Wetness Events								
Rain Amount	0.03	0.00	0.13	0.48	0.01	NA	NA	NA
Rain Prob (%) Night|Day ?			- | 52	95 | 69	37 | 15	3 | 5	2 | 17	17 | 33
Dew ?	Yes	Yes	Yes	No	Yes	No	No	No
Leaf Wetness (hours)	10	8	13					

NA - not applicable Ascospore Maturity Graphs Download Time: 5/28/2013 10:00

An apple scab infection period has been predicted and ascospores are mature. Ensure that young leaves and fruit are protected. Click here for pesticide information.

Ascospores were essentially all released on May 22. Orchards are still at risk for conidial infections. Continue to monitor scab infection events and maintain spray coverage accordingly for at least two more weeks, or until June 5. Scout orchards for primary scab infections after this time.

Regarding ascospore maturity -- I have access to several sources of data, and here is where they currently stand for Belchertown:

NEWA: 99%

SkyBit E-Weather: 97%

Orchard Radar: app. 90%, as high as app. 98% and as low as app. 75%

RimPRO: app. 90%

There is likely to be one more scab infection period with rain tonight and tomorrow. Some orchards may be adequately protected with fungicide and will be all done. For most, however, I would consider being coverd up for this infection period (or right after if you believe in using kick-back fungicides) and then we will be done with primary scab season. Continue to monitor your foliage for signs of infection and if you have a perpetual problem with scab, you will probably want to remain covered up with fungicide for another two weeks during rainy weather.

There will be a high risk of **fire blight** infection towards the end of this week, but only if you have open bloom (pretty well gone now) or you have a trauma event (such as hail and/or high wind with precipitation during a thunderstorm) to the foliage. I would be interested to hear any reports of fire blight strikes starting to show up as we should be seeing them soon from earlier infection periods.

Horticulture

OK, I commented on apple fruit thinning above. Again, I have access to several sources of thinning information regarding efficacy at application based on the weather forecasts. Based on these, and my gut feeling, you will get **good** thinning at modest rates because of the upcoming heat. I repeat, and go ahead, if you need modest thinning, a single application of carbaryl (Sevin @1-2 pint per acre), NAA (Fruitone-L @ 2-4 oz. per acre), or 6-BA (Maxcel @ 1.5 to 2 quart per acre) is indicated. If more thinning is desired, use a combination of most any two of above. You will get good thinning now and you should thin if you need to! But, use some **CAUTION: temperatures above 85-90 degrees F. can result in over-thinning! Use caution when applying growth regulators such as NAA or 6-BA when the forecast is hot! (Particularly 6-BA, i.e. Maxcel.)**

!!!Just in!!! This is from Jim Schupp, Penn State University Fruit Times and after some discussion with Duane Greene, he too thinks it is good advice!

Caution
The forecast for our region calls for temperatures in the high 80s to low 90s for Wednesday through Sunday, with lows in the mid-60s throughout that time. Under high temperatures, all thinning chemistries are more effective than when temperatures are more moderate. This includes carbaryl, regarded by many as a mild thinner. Under high heat, even carbaryl can be a potent thinner, removing larger fruits that would be expected.

If chemical thinning is still needed, you should apply thinners, however the forecast dictates that this is a time to tread lightly. Chemical rates should be reduced to the minimum effective dose for the variety being treated. Carbaryl should be applied at 1 pt per 100 gallons of spray mix. Re-think the need for oils or other adjuvants in the thinner tank mix. Do not concentrate chemical thinners in such weather, even if you are spraying concentrate.

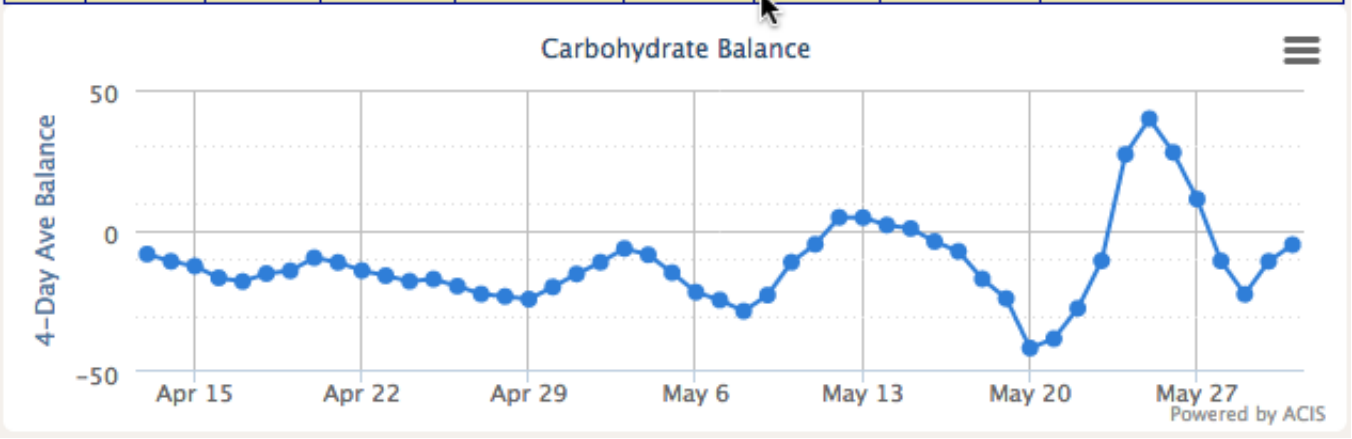
Finally, if you determine that the best course of action is to wait and apply a thinner spray containing ethephon, you may still have time to wait for the coming hot spell to pass to make a chemical thinning application.

Below is the result of the NEWA Apple Carbohydrate model run today (5/28) for Belchertown. It's indicates a modest carbohydrate deficit beginning right now and suggests reducing rates slighly by 15%. Note that this model output changes daily and really should be updated every day for the station closest to you. The NEWA Apple Carbohydrate model website is here: http://newa.cornell.edu/index.php?page=apple-thin

Apple Carbohydrate Thinning Model Results

Date	Max Temp (°F)	Min Temp (°F)	Solar Rad (MJ/m2)	Tree Carbohydrate Status (g/day)				Thinning Recommendation
				Production	Demand	Balance	4-Day Ave Balance	

5/27	70	40	30.7	114.84	49.11	65.72	11.27	Increase chemical thinner rate by 30%
5/28	73	42	21.2	93.79	55.58	38.21	-10.69	Apply standard chemical thinner rate
5/29	80	55	10.3	44.86	81.84	-36.97	-22.5	Decrease chemical thinner rate by 15%
5/30	89	60	21.5	75.93	97.80	-21.87	-10.8	Apply standard chemical thinner rate
5/31	92	62	23.9	76.96	99.11	-22.15	-4.94	Apply standard chemical thinner rate
6/1	91	64	22.1	72.89	81.91	-9.02		
6/2	84	63	19.1	74.87	65.04	9.82		
6/3	75	60	11.4	52.72	51.13	1.59		



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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The next Healthy Fruit will be published on Tuesday, June 4 or thereabouts, 2013. 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.