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Current degree day accumulations

Location: UMass Cold Spring Orchard, Belchertown, MA

	20-May, 2013
Base 43	490
Base 50	296

Upcoming pest events

Coming events	Degree days (Base 43)
Green fruitworm flight subsides	251-451

Spotted tentiform leafminer sap feeders present	343-601
Oriental fruit moth 1st flight peak	347-547
Lesser apple worm 1st catch	363-561
San Jose scale 1st catch	430-614
San Jose scale 1st flight peak	554-746
Codling moth 1st flight peak	57-999
European red mite 1st summer eggs	447-555
Lesser peachtree borer 1st catch	485-683
Oblique-banded leafroller pupae present	601-821
Plum curculio oviposition scars present	485-589
McIntosh fruit set	510-600

Orchard radar apple insect key dates

Beginning this week, I will summarize the 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 20: 1st generation adult emergence at 2% 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 7, Friday. 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 24, Monday.

Oriental Fruit Moth (OFM) 1st generation OFM flight starts: May 3, Friday. 1st generation 55% egg hatch and first treatment date, if needed: May 28, Tuesday.

Plum curculio (PC) increased risk of PC damage as McIntosh and similar cultivars increase fruit size: May 20, Monday. Earliest safe date for last PC insecticide spray: May 28, Tuesday. If relying on repellance by Surround instead of PC mortality by insecticide, Surround coverage should be maintained until PC egg laying begins to naturally decline around Wednesday, June 26.

Spotted Tentiform Leafminer (STLM) 1st generation sapfeeding mines start showing: May 20, Monday. Optimum sample date is around Tuesday, May 21, when a larger portion of the mines are visible.

European Red Mite (ERM) Optimum monitoring period for 1st generation ERM: Wednesday, May 15 (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

It's a period of high activity -- disease pressure is very high, I assume every apple orchard is well protected with fungicide and strep as necessary -- and plum curculio are active. In addition, it's time to apply thinning sprays. Need I say more? Oh yea, the grass is growing like crazy too and codling moth are hatching and it's time to treat for spotted tentiform leafminer (as necessary, after you have scouted for mines), etc., etc.

If you are finished spraying and need to get away for an evening, consider going to the premier of [Vanishing Orchards: Apple Growing In Rhode Island at the Jane Pickens Theater](#) in Newport, RI on Thursday, May 23.

Insects

First **codling moth (CM)** trap catch ([picture](#)) at the UMass Orchard late last week. Below is the current NEWA output on CM management. In general, petal fall sprays for plum curculio CM. See the 2012 New England Tree Fruit Management Guide for specific recommendations.

Codling Moth Results for Belchertown

First Trap Catch:

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 5/19/2013: 23 (0 days missing)

Pest stage:

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) will be active this week. Below is the NEWA status. Needless to say, some insecticide coverage is necessary beginning at petal fall until the risk of damage is over (at about 340 DD's).

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:

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 5/19/2013: 15 (0 days missing)

Pest stage:

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

Pest Status	Pest Management
<p>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.</p>	<p>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</p>

Petal fall sprays also control **oblique-banded leafroller OBLR** (to a certain extent). Below is the current NEWA output and discussion fro OBLR.

Obliquebanded Leafroller Results for Belchertown

Accumulated degree days (base 43°F) 1/1/2013 through 5/20/2013: 553 (0 days missing)

Phenological stage:



Click to enlarge

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
<p><u>Overwintering larvae</u> begin to feed on developing fruit and may cause some <u>damage</u>, 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).</p>	<p>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</p>

Diseases

Risk of apple scab, rust, and fire blight infection is HIGH this week. Here is an e-mail from Dan Cooley:

"High Risk of Scab and Fire Blight This Week"

Over this coming week, conditions for a heavy apple scab infection may develop. There is a large amount of scab inoculum available for release, and if rain develops and keeps leaves wet over the next few days, it will result in a heavy scab infection. Application of protectant fungicides combined with a DMI, strobilurin, or SDHI fungicide prior to infections. Showers may make it difficult to apply fungicides, but it will be well worth putting on an application sooner rather than later.

Please note there's an error in the New England Tree Fruit Management Guide. The Inspire Super rate is listed as 8 oz/A. This is below the range from trials, which is 8.5 to 12 oz/A, and well below the current label rate of 12 oz/A. Given the potential severity of apple scab infections occurring as a result of the present rain, growers should use the 12 oz/A rate. And as always, mix any SI including

Inspire Super with a contact fungicide, mancozeb (3 lb/A), or captan (80WP at 2 lb/A).

In addition, models are predicting a high risk of fire blight, particularly at the end of next week. In those trees that still have blooms, a streptomycin application should be considered, at least in highly susceptible varieties or where there is a history of fire blight.

Horticulture

Again, I want to point out that the Apple Carbohydrate Thinning Model is now available on NEWA: <http://newa.cornell.edu/index.php?page=apple-thin>. Below is the current output for Belchertown.

I have access to three different thinning models, and all suggest moderate thinning activity this week. That means the trees are pre-disposed to good chemical thinning, largely on account of warm, cloudy weather. Of course the models are very weather-dependent, and the forecast may change. BUT, expect good petal fall thinning activity if you apply a thinner early-mid week this week. The models suggest with a return to fair and cooler weather late week and next weekend, then the trees will be harder to thin with chemical thinners. Adjust your chemical thinner rates accordingly.

Here is a good short article from MSU on '[Apple Thinning Pointers for 2013](#).' It is aimed at Michigan growers, but most points are appropriate for us here in Massachusetts.

Apple Carbohydrate Thinning Model for Belchertown

Change green tip and/or bloom date and click "Calculate" to recalculate results.

Green tip date	Bloom date	Calculate
<input type="text" value="04/15/2013"/>	<input type="text" value="05/08/2013"/>	

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	
4/15	59	31	19.3	0.00	7.76	-7.76	-11.67	-
4/16	62	38	15.5	0.00	11.20	-11.20	-15.60	

								Chemical thinner rate
5/18	71	43	21.5	47.69	48.14	-0.45	-25.79	Decrease chemical thinner rate by 15%
5/19	64	49	11.5	29.43	48.58	-19.14	-36.77	Decrease chemical thinner rate by 15%
5/20	81	55	21.5	51.47	81.18	-29.72	-50.21	Decrease chemical thinner rate by 30%
5/21	76	62	12.3	32.17	86.02	-53.85	-43.69	Decrease chemical thinner rate by 30%
5/22	84	55	14.7	44.34	88.71	-44.37	-21.21	Decrease chemical thinner rate by 15%
5/23	80	64	9.1	23.86	96.79	-72.92	4.32	Increase chemical thinner rate by 30%
5/24	68	50	12.4	54.38	58.02	-3.63	35.79	Increase chemical thinner rate by 30%
5/25	66	45	25.8	84.42	48.34	36.08		
5/26	67	43	25.6	103.98	46.23	57.74		
5/27	69	45	25.2	104.02	51.06	52.96		

Useful links

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>

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

The next Healthy Fruit will be published on Tuesday, May 28 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.