Healthy Fruit, Vol. 23, No. 11, June 16, 2015

Jon Clements, Author (unless otherwise noted) and Editor

Contents

Current degree day accumulations

UMass Cold Spring Orchard, Belchertown, MA	15-June
Base 43 (SkyBit)	1087
Base 50 (NEWA)	760

Upcoming pest events

Coming events	**Degree days (Base 43)**
Spotted tentiform leafminer 2nd flight begins	994-1166
Pear psylla 2nd brood hatch	967-1185

San Jose scale 1st flight subsides	864-1238
San Jose scale 1st gen. crawlers present	1033-1215
European red mite summer egg hatch	737-923
Cherry fruit fly 1st catch	755-1289
Obliquebanded leafroller 1st flight peak	834-1226
Obliquebanded leafroller summer larvae hatch	1038-1460
Rose leafhopper adults on apple	809-1053
Oriental fruit moth 1st flight subsides	893-1115
Lesser appleworm 1st flight subsides	992-1528

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 June 16: 1st adult emergence at 45% and 1st generation egg hatch at 1%. In most orchards, insecticide targetted against plum curculio and apple maggot prevent codling moth damage. If targetted 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: June 29, Monday = target date where one spray needed to control 1st generation CM.

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 insecticde effective against OBLR (with follow-up applications as needed): June 24, Wednesday.

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.

Plum curculio (PC) -- Increase risk of PC damage as McIntosh and similar cultivars increase fruit size: May 22, Friday; Earliest safe date for last PC insecticide spray: June 2, Tuesday.

Redbanded leafroller (RBLR) -- 2nd RBLR flight begins around June 29, Monday. Peak catch and approximate start of egg hatch: July 13.

San Jose scale (SJS) -- First adult SJS caught on trap: May 20, Wednesday; 1st generation SJS crawlers appear: June 17, Wednesday.

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.

Upcoming meetings

18-June, 2015 (Thursday) Fruit Twilight Meeting in cooperation with Rhode Island Fruit Growers' Assoc. Rocky Brook Orchard, 997 Wapping Rd, Middletown, RI. 5:30 PM. Bring lawn chair for yourself as there will be an outside picnic light supper. Pesticide re-certification credit(s) will be available. Special guest: George Hamilton, UNH Cooperative Extension will discuss targeted orchard spray application and demonstrate what you can do to improve your airblast spray

pattern for improved pest control and pesticide efficiency.

21-July, 2015 (Tuesday) Massachusetts Fruit Growers' Association Summer Meeting, Red Apple Farm, 455 Highland Ave, Phillipston, M. 10 AM to 3 PM. More details coming soon...

For more information and updates, see Upcoming Events or contact Jon Clements, 413-478-7219.

The way I see it

I am loosely going to call this a "Special NEWA Edition" as I am going to basically call on NEWA (http://newa.cornell.edu) to tell me what my current disease and insect status is. Really, it's (mostly) all you need to know. Can you tell I am greasing the wheels towards my retirement? Seriously, if you are not using NEWA you should be. I know it is sometimes hard to devote computer time to looking at these model outputs, but they are truly excellent guidance to your current pest situation. Note that if NEWA deems a pest active, you can get Pesticide information by clicking that link at the end of the pest summary as seen below:

Once infection is predicted, ensure that susceptible tissues are adequately protected with a fungicide. Longer wetting, beyond the minimum times for a given temperature specified in the Revised Mills Table, often results in more disease. Pesticide Information.

Insects

Plum curculio (PC) is done in Belchertown:

Plum Curculio Results for Belchertown

Petal Fall: 5/19/2015

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.

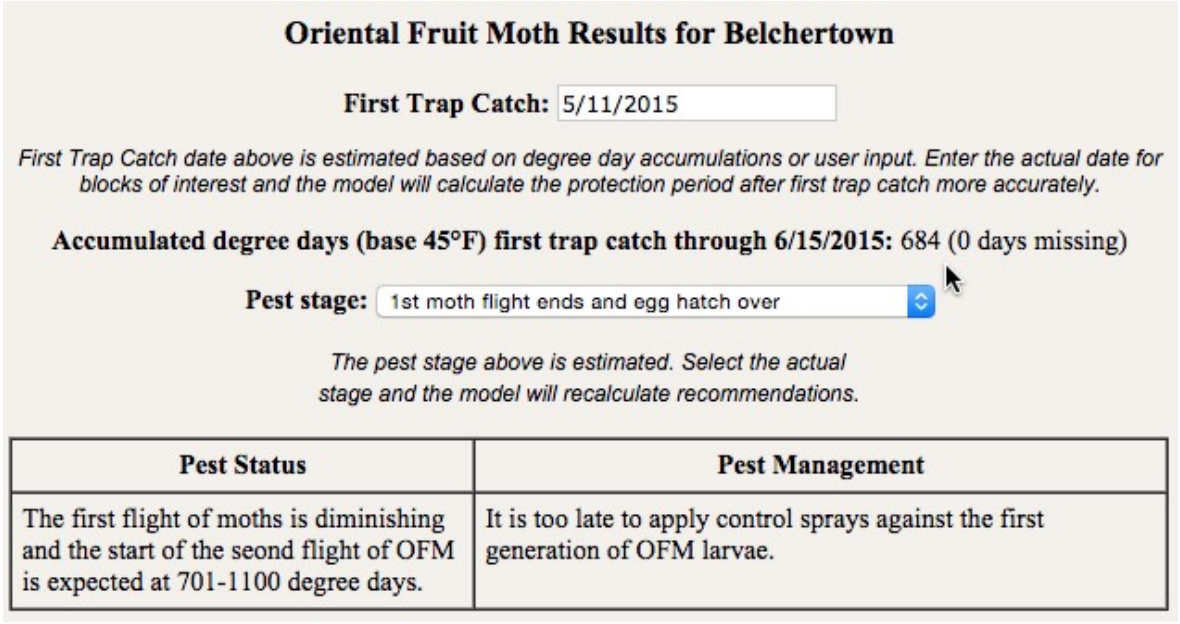
Accumulated degree days (base 50°F) petal fall through 6/15/2015: 406 (0 days missing)

Pest stage: Adults stop ovipositing

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

Pest Status	Pest Management
Plum curculio immigration into orchards is over for the season.	Plum curculio control sprays are no longer necessary during the rest of the season.

Oriental fruit moth (OFM), no action necessary at this point in time on first generation; second generation forthcoming:



Oriental Fruit Moth Results for Belchertown

First Trap Catch: 5/11/2015

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.

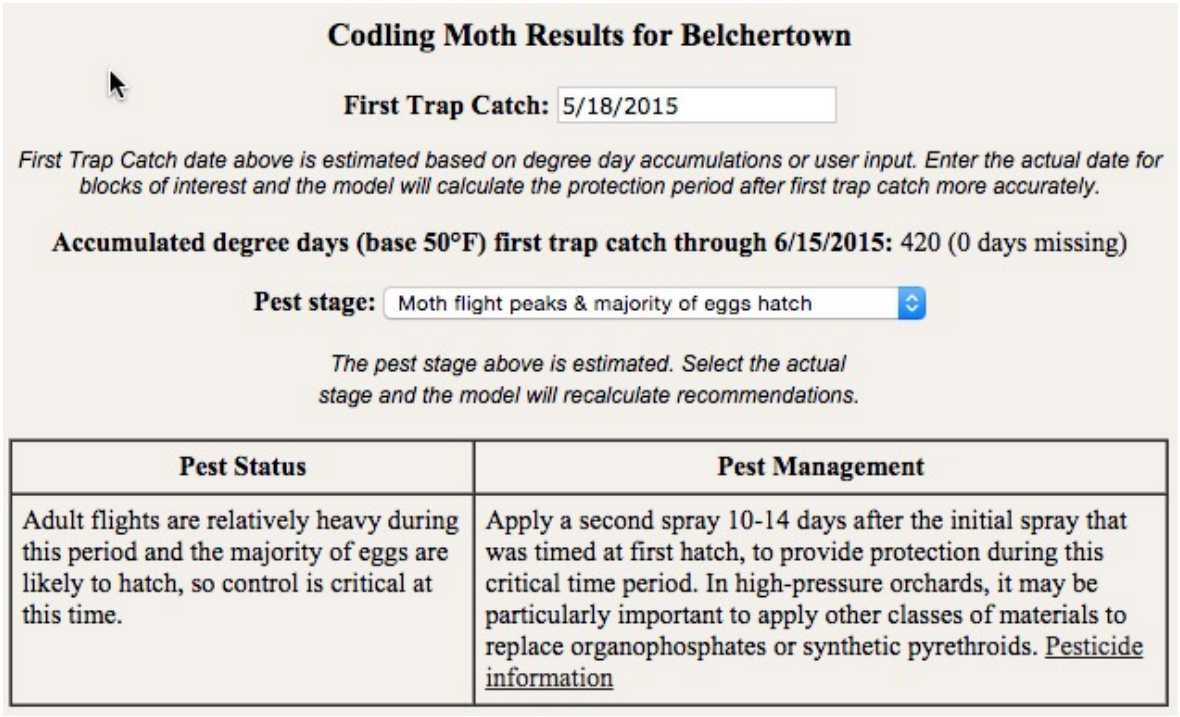
Accumulated degree days (base 45°F) first trap catch through 6/15/2015: 684 (0 days missing)

Pest stage: 1st moth flight ends and egg hatch over

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

Pest Status	Pest Management
The first flight of moths is diminishing and the start of the seond flight of OFM is expected at 701-1100 degree days.	It is too late to apply control sprays against the first generation of OFM larvae.

Codling moth (CM), we are in a peak control period. If you have an ongoing problem with CM (some orchards do, some don't, some control with petal fall sprays, others not so much...), excellent control achieved with: Delegate, Altacor, Proaxis, Rimon, Belt, Leverage, and Voliam Express. Imidan and pyrethroids (Danitol) are also effective if you don't have resistance to these chemicals (moreso for Imidan). Try to rotate classes of insecticides if using multiple sprays.



Codling Moth Results for Belchertown

First Trap Catch: 5/18/2015

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 6/15/2015: 420 (0 days missing)

Pest stage: Moth flight peaks & majority of eggs hatch

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

Pest Status	Pest Management
Adult flights are relatively heavy during this period and the majority of eggs are likely to hatch, so control is critical at this time.	Apply a second spray 10-14 days after the initial spray that was timed at first hatch, to provide protection during this critical time period. In high-pressure orchards, it may be particularly important to apply other classes of materials to replace organophosphates or synthetic pyrethroids. Pesticide information

Obliquebanded leafoller (OBLR): adult moths are flying and laying eggs, but it is a little too early to target hatching larvae. This typically comes during the last week in August, when a targeted spray is important to control OBLR. Those insecticides mentioned above for codling moth are generally effective against OBLR.

Obliquebanded Leafroller Results for Belchertown

First Trap Catch: 6/6/2015

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 43°F) first trap catch through 6/15/2015: 252 (0 days missing)

Pest stage: Peak moth flight, first egg hatch

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

Pest Status	Pest Management
First hatch of summer OBLR eggs. Adult catches in pheromone traps are near peak numbers.	In order to verify model predictions, monitor growing terminals at 600-700 DD base 43F after biofix to check for the detection of the first summer generation larvae. It is too early now to monitor populations of summer larvae at this time to determine if control sprays are necessary because most eggs will hatch later during the summer. However, applying protective sprays with the first spray timed to coincide with the first hatch of larvae at approximately 350 DD base 43F after biofix followed by a second spray 10-14 days later are recommended in orchards that have had a past history of severe OBLR fruit damage or if populations of overwintering larvae were high. Pesticide information

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Diseases

I deem primary **apple scab** season over (for most of you). Hurrah! It's been a weird one, with a very dry May holding back ascospore maturity, but with the recent rain there is pretty good evidence all are mature and were releasesd (except for a very few). If you appear clean, congratulations, but with the return of wet weather, keep a close eye on your foliage for the appearance of any scab lesions.

Apple Scab Results for Belchertown

The Ascospore Maturity degree day model begins at 50% green tip on McIntosh flower buds and provides an estimate of the potential for ascospore discharge in the next rain. To recalculate ascospore maturity for your orchard, enter your green tip date:

Green Tip Date: 4/18/2015

Ascospore Maturity Summary

	Past	Past	Current	5-Day Forecast				
	Jun 14	Jun 15	Jun 16	Jun 17	Jun 18	Jun 19	Jun 20	Jun 21
Ascospore Maturity	100%	100%	100%	100%	100%	100%	100%	100%

Forecast Details

Ascospore Maturity Graphs

Ascospores were essentially all released on May 27. 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 10. Scout orchards for primary scab infections after this time.

Infection Events Summary

	Past	Past	Current	5-Day Forecast				
	Jun 14	Jun 15	Jun 16	Jun 17	Jun 18	Jun 19	Jun 20	Jun 21
Infection Events	No	Combined	Yes	No	No	No	No	No
Days to Symptoms	-	-	9-10	-	-	-	-	-
Average Temp (F) for wet hours	59	59	70	62	65	63	66	66
Leaf Wetness (hours)	5	16	10	6	2	6	2	5
Rain Amount	0.00	1.65	0.14	0.00	0.00			
Rain Prob (%) Night|Day			0 | 47	5 | 5	9 | 35	38 | 5	8 | 11	24 | 30

Download Time: 6/16/2015 10:00

Apple scab infection events, shown in red above, are calculated beginning with 0.01 inch of rain. The word "Combined" in the above table means the wetting event on this day is being combined with another wetting event. To calculate the length of a wetting period, we use the following rule: two successive wetting periods, the first started by rain, should be considered a single, uninterrupted wet period if the intervening dry period is less than 24 hours. **When an infection event is in the 5-day forecast, the actual weather data logged may or may not translate into an actual infection event. Therefore, the table output may change once actual weather data is logged.**

Ascospores, which cause primary scab, discharge during rain. Both ascospores and conidia, which cause secondary scab, infect at similar rates. A single set of conditions, the Revised Mills Table, can be used for determining infection events for both primary and secondary infections.

Once infection is predicted, ensure that susceptible tissues are adequately protected with a fungicide. Longer wetting, beyond the minimum times for a given temperature specified in the Revised Mills Table, often results in more disease. Pesticide Information.

Apple Scab Infection Events (March 1 - June 16)

Start Date & Time	End Date & Time	Wet Hours	Temp Avg. (F)	Rain (in.)	Days to Symptoms	Combined Event
June 15 3:01 AM	June 16 7:00 AM	15	57	1.66	12-13	Yes
June 13 12:01 AM	June 13 7:00 AM	7	68	0.08	9-10	
June 9 4:01 PM	June 10 8:00 AM	16	60	0.39	9-10	
May 31 3:01 AM	June 2 1:00 PM	46	49	2.33	17	Yes
May 27 8:01 PM	May 28 6:00 PM	14	65	0.52	9-10	Yes
May 19 5:01 AM	May 20 12:00 AM	11	58	0.13	12-13	Yes
April 20 7:01 AM	April 21 12:00 PM	28	47	0.72	17	Yes
March 25 6:01 PM	March 27 10:00 AM	38	37	0.89	-	Yes

Dry conditions last 3 hours at download — Download Time: 6/16/2015 10:00

Although we have left scab behind presumably, the risk of **sooty blotch and flyspeck (SBFS)** is just starting, and probably warrants getting back on the sprayer and applying fungicide during wet weather. Note that NEWA allows you to enter a fungicide spray date and then re-calculates the risk of SBFS infection.

Sooty Blotch and Flyspeck Risk Predictions for Belchertown

Petal fall date for McIntosh: 5/19/2015

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 accumulated leaf wetness hours since petal fall more accurately.

Most recent fungicide application date: Click to enter

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.

Sooty Blotch and Flyspeck Risk Summary - Northeastern US Model

	Past	Past	Current	5-Day Forecast Forecast Details				
Date	Jun 14	Jun 15	Jun 16	Jun 17	Jun 18	Jun 19	Jun 20	Jun 21
Days since petal fall	26	27	28	29	30	31	32	33
Accumulated Leaf Wetness Hours - ALWH	150	166	179	183	183	187	187	191
Risk Level	Moderate	Moderate	High	High	High	High	High	High
Rain Events								
Daily rain amount (inches)	0.00	1.65	0.17	0.00	0.00	NA	NA	NA
Rain probability (%) Night|Day ?			- | 27	5 | 5	9 | 35	38 | 5	8 | 11	24 | 30

NA - data not available.

Download Time: 6/16/2015 10:00

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.*

Fungicides

Most recent fungicide application date: 6/14/2015

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.

Sooty Blotch and Flyspeck Risk Summary - Northeastern US Model

	Past	Past	Current	5-Day Forecast				Forecast Details
Date	Jun 14	Jun 15	Jun 16	Jun 17	Jun 18	Jun 19	Jun 20	Jun 21
Days since petal fall	26	27	28	29	30	31	32	33
Accumulated Leaf Wetness Hours - ALWH	150	166	178	182	182	186	186	190
Risk Level	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low	Low
Rain Events and Fungicide Depletion Estimate								
Days since last fungicide application	-	1	2	3	4	5	6	7
Rain since last fungicide application	-	1.65	1.82	1.82	1.82	NA	NA	NA
Daily rain amount (inches)	0.00	1.65	0.17	0.00	0.00	NA	NA	NA
Rain probability (%) Night|Day			- | 27	5 | 5	9 | 35	38 | 5	8 | 11	24 | 30

NA - data not available. Download Time: 6/16/2015 11:00

!!! Just in, this on **fire blight**, from Kari Peter at Penn State: http://extension.psu.edu/plants/tree-fruit/news/2015/disease-update-where-are-those-fire-blight-strikes-coming-from This is a must read, because if they are seeing it down in Pennsylvania, we will likely start seeing it too up here.

JC

Horticulture

Now that the time to start applying PGR sprays for return bloom. I want to point out three resources on this topic for your reference and details of appliction:

1.) 'Enhancing Return Bloom of Apple' on the UMass Fruit Advisor/Wes Autio and Win Cowgill

2.) 'Promoting Return Bloom of Apple' from Penn State/Jim Schupp

3.) And this below from the Cornell ENYCHP Tree Fruit E-Alert for June 9th, 2015 at 6:00 pm

Return Bloom Spray Programs

Encouraging Return Bloom in Apples *Mario Miranda-Sazo*

As you wait to evaluate your "thinning jobs" and for "June drop" to assess your crop loads, you should begin to think about strategies to enhance return bloom in varieties that tend to be biennial (Honeycrisp, Fuji, Golden Delicious, Fortune, Jonagold, Braeburn, Mutsu (Crispin), Macoun, Northern Spy, and Cameo).

2015 Return Bloom Spray Recommendations

Spray	Honeycrisp, McIntosh, Macoun	Fuji (late varieties)
1 (once fruits are 1" @ 25-30mm in diameter. It can be the 2 or 3 week of June depending on location and cultivar. Measure your fruit.)	Ethrel (0.5 pints/100gallons or 1pt/acre)	Ethrel (0.5 pints/100gallons or 1pt/acre)
2 (7-10 days after spray #1)	NAA 5ppm (2oz/100gallons or 4oz/Acre)	Ethrel (0.5 pints/100gallons or 1pt/acre)
3 (7-10 days after spray #2)	NAA 5ppm (2oz/100gallons or 4oz/Acre)	NAA 5ppm (2oz/100gallons or 4oz/Acre)
4 (7-10 days after spray #3)	NAA 5ppm (2oz/100gallons or 4oz/Acre)	NAA 5ppm (2oz/100gallons or 4oz/Acre)

Encouraging Return Bloom in Pears *Mario Miranda-Sazo and Dan Donahue*

Four applications of 5-7.5ppm NAA starting next week to stimulate flower bud initiation. Avoid return bloom sprays of NAA if temperatures get in the high 80's/low 90's since application of these materials in hot weather or just prior to multi-days of hot weather might contribute to leaf yellowing, early ripening, smaller fruit size, and/or yield loss if rates are high.

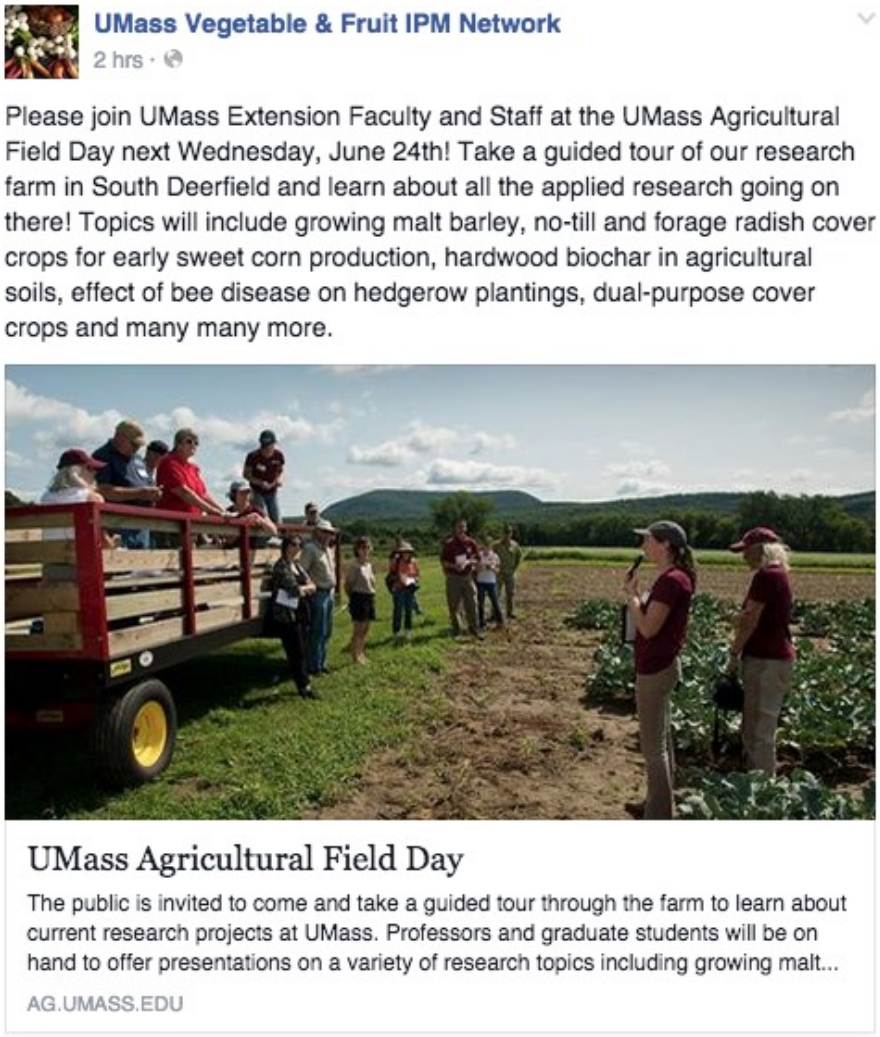
Guest article

No real Guest Article this week, however, everyone should take a look at this recent fire blight post by plant pathologist Kari Peter at Penn State to their Tree Fruit Production web page. We have seen this yet (?), but worth reading and keeping an eye on it. Please do let us know if you find any suspect fire blight in your orchard. JC

Disease Update: Where Are Those FireBlight Strikes Coming From?

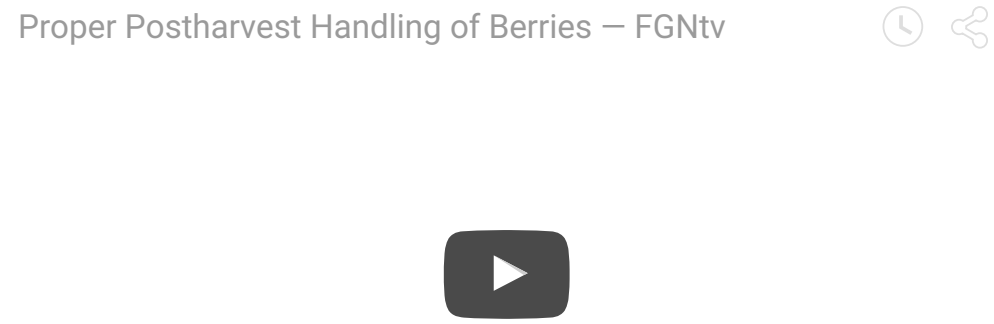
Facebook Me

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



Youtu.be

Proper Postharvest Handling of Berries - FGNtv



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

New England Apple Decision Support System maps (experimental)

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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, June 30 (2 week hiatus) 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.