



**Volume 21, Number 14. July 23, 2013.**

---

## **Contents**

[Current degree day accumulations](#)

[Upcoming pest events](#)

[Orchard radar apple insect key dates](#) (and preliminary McIntosh harvest date forecast)

[The way I see it](#)

[Insects](#)

[Diseases](#)

[Horticulture](#)

[Summer disease of apples](#)

[Useful links](#)

---

## **Current degree day accumulations**

Location: UMass Cold Spring Orchard, Belchertown, MA

	22-July, 2013
Base 43	2185
Base 50	1590

## Upcoming pest events

Coming events	Degree days (Base 43)
Apple maggot 1st oviposition punctures	1605-2157
Redbanded leafroller 2nd flight peak	1554-2002
Dogwood borer flight peak	1460-1844
Lesser appleworm 2nd flight begins	1418-2002
Spotted tentiform leafminer 2nd tissue feeders present	1378-2035
STLM 2nd flight subsides	1985-2371
Oblique-banded leafroller 1st flight subsides	1594-2028
Codling moth 2nd flight begins	1582-2256
Oriental fruit moth 2nd flight peak	1471-1989
San Jose scale 2nd flight begins	1620-1966

## Orchard radar apple insect key dates (and preliminary McIntosh harvest date forecast)

Here are insect key insect dates from [Orchard Radar, Belchertown, MA](#).

**Dogwood borer** first egg hatch roughly: June 26. Peak hatch roughly: July 27.

**Codling moth (CM)** Codling moth development as of July 22: 2nd generation adult emergence at 39% and 2nd generation egg hatch at 8%. If targeted codling moth control is needed, key management dates are: 2nd generation 7% CM egg hatch: July 21, Sunday = target date for first spray where multiple sprays needed to control 2nd generation CM. 2nd generation 30% CM egg hatch: July 30, Tuesday = target date where one spray needed to control 2nd generation CM.

**Spotted tentiform leafminer (STLM)** 2nd flight begins around: June 17, Monday. Rough guess of when 2nd generation sap-feeding mines begin showing: July 3, Wednesday. Optimum sample date for 2nd generation STLM sapfeeding mines is July 9, Tuesday. Second optimized sample date for 2nd generation STLM sapfeeding mines, if needed: July 15, Monday. Third optimized sample date for 2nd generation STLM sapfeeding mines, if needed: July 23, Tuesday.

**White apple leafhopper (WAL):** 2nd generation WAL found on apple foliage: August 3, Saturday.

**White apple leafhopper (WAL)** 2nd generation WAL found on apple foliage: August 1, Thursday.

**Preliminary McIntosh harvest date forecast:** Date to apply ReTain to delay first harvest for apples which without treatment would be ready for storage harvest on September 5 is Thursday, August 8. Begin measuring actual McIntosh starch-iodine no later than Monday, August 26. 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 5. Using the Hudson Valley, NY formula, McIntosh maturity is forecast to reach starch index 6.0 and the end of the

---

## The way I see it

I just ran two models for predicting harvest dates, one for peaches, one for apples. For peaches, it comes from Bill Shane at Michigan State University and it predicts the **estimated onset of Redhaven peach harvest at the UMass Orchard in Belchertown is Tuesday, August 6**. For McIntosh apples, the Cornell University model predicts **the last day for picking McIntosh for CA storage (starch iodine index = 5 to 6) is Tuesday, September 24**. This fits quite well with the Orchard Radar prediction (above) of the onset of McIntosh harvest is September 5. McIntosh typically has a 3 week picking window. (Although the judicious use of ReTain can certainly extend that.)

Otherwise, disease issues remain a concern. See the [article on summer disease control in apples](#), and as peach/nectarine/plum ripens, be sure to maintain fungicide coverage on stone fruit. See the last Healthy Fruit for an [article on choosing stone fruit brown rot fungicides](#).

If you get [hail](#), and have crop insurance, be sure to contact your crop insurance agent immediately.

---

## Insects

Insect activity situation is pretty much summed up above with [Orchard Radar](#). I would be on the lookout, and considering action on:

- **Apple maggot** is becoming active, with damage likely. You know if you typically have a problem and treat with Imidan or other as necessary
- **Dogwood borer** trunk-directed Lorsban spray on dwarf trees with exposed burr knots
- **European red mite** scout, numbers have been low but increasing. Treat as necessary, many options, consult the [2013 New England Tree Fruit Management Guide](#). Portal now has a supplemental label for use on stone fruit as well as apples.
- **Japanese beetle** are sporadically abundant, and most troublesome on young trees and Honeycrisp apples, peaches, and cherry. Treat as necessary with most any insecticide, repeat applications are necessary; if hot, avoid pyrethroids, they don't last or work as well in hot weather

I hope everyone (including your all your staff) is on the lookout for **Brown Marmorated Stink Bug (BMSB)** this year. The UMass Fruit Program has just rolled out a new page on BMSB on the UMass Fruit Advisor, <http://extension.umass.edu/fruitadvisor/brown-marmorated-stink-bug>. We would appreciate knowing about any potential sightings/findings. (Picture would be helpful.)

---

## Diseases

For all fungicide spray options for apple scab and summer diseases, consult the [2013 New England Tree Fruit Management Guide](#). We suggest including Captan in all applications and at close to a full rate if secondary scab is of major concern. See [Summer disease of apples](#) for a comprehensive treatise.

---

## Horticulture

**Calcium** should be included in all apple cover sprays and/or supplemental sprays now. Many sources of calcium are available, see [Foliar Calcium Sprays for Apples](#) for specifics.

**Summer pruning** can be ongoing. Here is a short reprint from July 29, 2003 Healthy Fruit:

From now until August 15 is a good time to summer prune varieties such as McIntosh, Cortland, Gala and Jonagold strains (and Golden Delicious) to improve fruit color. Color pigments are being accumulated in the fruit skin but waiting for cooler weather to develop into the red color characteristic of fall apples. But the fruit must be exposed to light for the pigment to be stored and expressed, hence the value of summer pruning now to remove shading in the tree canopy.

Vigorous, upright, current season's shoot growth ('suckers' or 'water sprouts') are prime candidates for removal by summer pruning. Also, undesirable uprights just above fruiting clusters can be headed-back to the cluster, and upturned branches can be thinned to a weak lateral branch. Summer pruning now may also help improve the calcium content of fruit. (But don't rely on it, keep that calcium foliar spray program going). Keep in mind summer pruning on apple can negatively impact fruit size, can result in sunburn if hot, sunny weather follows, and, when done too close to harvest (less than three weeks), it can result in premature fruit drop. But usually the benefits of summer pruning in improving fruit quality outweigh the potential drawbacks.

On peach, the last summer pruning on one- and two-year-old peach trees to shape them, should be completed within the next week to ten days. On bearing peach trees, removing the upright vigorous sucker growth in the center of the tree will enhance color, but must be completed two weeks prior to harvest to prevent reduction in soluble solids.

Note: summer pruning of apple and peach should be completed by August 20, and ideally be done ASAP now. Pruning after this date can predispose the trees to winter injury.

Reprinted from Rutgers Cooperative Extension Plant & Pest Advisory, Fruit Edition, July 22, 2003

**Leaf analysis time:** From now until mid-August is the time to collect leaf samples for nutrient analysis. All blocks of apples, peaches, and cherries should be sampled every three years, or more often when deficiency symptoms, poor tree performance, or fruit quality problem show up. The University of Massachusetts Soil and Plant Tissue Testing Laboratory (<http://soiltest.umass.edu/>) has a plant tissue testing service. The cost is \$25.00 per sample, including nitrogen. Detailed information on how to collect and submit a leaf analysis sample is available on their [website](#). Also attached is the plant tissue test order form with instructions.

---

## Summer disease of apples

Dan Cooley and Arthur Tuttle, UMass Amherst

The summer diseases of apples include the blemish complex, sooty blotch and flyspeck, and three fruit rots. Generally in New England, fruit rots have not been a big problem, and we have focused on SBFS management when recommending fungicides. But the constant humidity, with dewpoints generally above 70°F for most of four weeks, begins to look like North Carolina weather. And in North Carolina, apple growers spray (lots) for fruit rots. If you have had problems with black rot, bitter rot or white rot in the recent past, it might be good to apply a fungicide against these diseases. The table below rates the major apple fungicides for summer disease management, showing both those that are and those that are not recommended.

### *What are the best fungicides to use?*

Captan is probably the fungicide most frequently used against SBFS in the Northeast. However, it is not the most effective fungicide against SBFS, and it is only fair to slightly effective against fruit rots. Topsin M is highly effective against SBFS, black

rot and white rot, but not that effective against bitter rot. A combination of Captan (full rate) plus Topsin M is very effective against SBFS, black rot and white rot, and fair against bitter rot.

The strobilurin (QoI) fungicides, including Flint, Sovran, Cabrio and Pristine are all very effective against SBFS. Pristine is actually a pre-mixed fungicide of a strobilurin plus another type of fungicide, an SDHI. In addition, these fungicides generally have good efficacy against the fruit rots, though Flint and Sovran are rated only fair against bitter rot. These are good fungicides to use against summer diseases, but the numbers of applications allowed per season are limited. If strobilurins were used earlier for apple scab, then this will limit the number of fungicides that should be used in summer. The recommendation is to limit applications of these fungicides to blocks or times when disease pressure is high. That is, limit applications to blocks where there is a history of SBFS or fruit rot in the block, or to times when the weather has been abnormally rainy and humid. In any case, we recommend limiting use to one or two applications in summer, and to mix strobilurins with captan to reduce risk of resistance development.

The EBDC fungicides, including Dithane, Manzate, Penncozeb and Polyram were once the fungicide of choice against summer diseases because they are very effective against all of them. However, the 77 day pre-harvest interval means that they cannot be used against many varieties past the end of June, and certainly not after mid-July on anything. **They are included in the recommended area only because they may be useful in the early season next year.**

Many apple fungicides are not that effective against SBFS and rots. Others may have some efficacy and be labeled for use on SBFS, but are not recommended. In particular, none of the new materials containing an SDHI are recommended for SBFS. Luna Tranquility and Fontelis are not labeled for SBFS. Merivon and Luna Sensation are pre-mixed with a strobilurin, which gives them some efficacy against summer diseases and they are labeled for SBFS, but are definitely NOT recommended by us because the pre-mix partner is wasted and for resistance management, captan would need to go into the application.

Similarly, Inspire Super is a premix with cyprodinil, and while the strobilurin partner (difenconazole) is highly effective against SBFS, and it is labeled for it, it is not recommended for the same reasons. It's a total waste of the cyprodinil at this time of year. The ONLY pre-mix recommended for SBFS is Pristine as mentioned above, and it should only be used as the last SBFS application of the season (if at all).

#### *What sort of schedule should be used?*

We recommend spraying summer fungicides as needed rather than on a calendar schedule, and targeting SBFS. Growers who have or are near weather stations that are linked to NEWA ([www.newa.cornell.edu](http://www.newa.cornell.edu)) have the option of using their own local weather data and the NEWA model to manage summer diseases.

This year, the first SBFS fungicide should have been applied a few weeks ago, but for reference, here's how the timing for the first application is determined. To time the first application, Leaf Wetness Hours (LWH) need to be tracked from the time of the last scab fungicide application. Alternatively, start tracking two weeks following the first cover spray. When 175 LWH have accumulated, potential SBFS infections need to be treated with a fungicide spray. All subsequent sprays follow the decision rules based on the calendar or rainfall threshold of the chosen fungicide. During long dry spells in the summer, it might be

necessary to spray by the calendar threshold rather than the rainfall threshold

Fungicides are grouped based on their persistence and maximum manufacturer's recommended field rate. Pristine has a threshold of 2.5 inches of rain or 21 days. Flint, Sovran, Topsin M tank-mixed with Captan have a 2 inch rain or 21 day threshold. Captan by itself and Ziram 76WP have thresholds of 1.5 inches of rain or 14 days. Timing of sprays continues based on these decision rules for the remainder of the season. For fruit that matures late in the season, be prepared to treat late or use the fungicide with the most longevity, Pristine. Watch PHI's on all fungicide applications.

### Application Scheduling for Summer Fungicides

Fungicide	Inches of Rain before next application	Maximum time before next application
Captan 80WDG 1.25 lbs./100 gal. (or equivalent captan in other formulation); or Ziram 76WP 1.5 lbs./100 gal.	1.5	14
Flint 50WDG 0.67 - 0.8 oz./100 gal. dilute; or Sovran 50 WG 1.0 - 1.6 oz./100 gal. dilute; or Topsin M 70 WP (or equivalent) 3 - 5 oz./100 gal. + Captan 50WP 1 lb./100 gal. (or equivalent)	2.0	21
Pristine (5 oz./100 gal. or minimum of 14.5 oz./A)	1.5	14

In our grower experiments which used this protocol there was an average of 18.6% decrease in fungicide use in 2010 and a 14.1% decrease in 2011 (measured in dosage equivalents) in the experimental test blocks compared to the grower check blocks which were sprayed according to a looser calendar program. Although we are not formally working on the SBFS model this summer, we are always eager to hear your comments and answer questions.

### Fungicide Ratings for Control of Summer Diseases of Apple

Trade Name	FRAC code [e]	Ratings for the Control		
		Sooty Blotch/ Flyspeck	Black/ White Rot	Bitter Rot
Topsin M	M1	4	4	1
Cabrio	11	4	3	3
Flint	11	4	3	2
Sovran	11	4	3	2
Pristine	11 + 7	4	3	3
Captan, Captec	M4	3	1	2 [c]

Ziram	M3	3	1	1
Ferbam Granuflo	M3	2	1	1
<b><i>There is a 77 day pre-harvest interval for fungicides in this group</i></b>				
Dithane	M3	4	3	4
Maneb	M3	4	3	4
Manzate	M3	4	3	4
Penncozeb	M3	4	3	4
Polyram	M3	4	3	4
<b><i>The following fungicides are NOT recommended for summer diseases</i></b>				
Inspire Super [d]	3 + 9	4	0	0
Indar [d][a]	3	2	0	0
Tebuzol [d][a]	3	2	0	0
Syllit	M7	1	1	0
Sulfur [f]	M2	1	1	—
Procure [d][a]	3	0	0	0
Rally [d][a]	3	0	0	0
Rubigan [d][a]	3	0	0	0
Scala [d]	9	0	0	0
Topguard [a]	3	0	0	0
Vanguard	9	0	0	0
Copper compounds [f]	M2	-	-	-
Fontelis [a]	7	-	-	-
Luna Sensation [a]	7 + 11	-	-	-
Luna Tranquility [a]	7 + 9	-	-	-
Merivon [a]	7 + 11	-	-	-

**Key to control ratings:**

— = Unknown or not recommended; 0 = none, 1 = slight, 2 = fair, 3 = good, 4 = excellent

**Notes:**

[a] To manage resistance and improve efficacy tank mix with captan or an EBDC

[b] Indicates efficacy at the 1 lb/100 gal rate; efficacy increases to 4 with the 2 lb/100 gal rate.

[c] Limited residual activity. Efficacy rating of "good" assumes regular reapplication during periods of heavy disease pressure. More effective against sooty blotch, less effective against flyspeck.

[d] Activity of these materials is highly rate-dependent. Use highest labeled rates for these ratings and to manage resistance.

[e] = The Fungicide Resistance Action Committee, FRAC; <http://www.frac.info/frac/index.htm> is an organization committed to prolonging the effectiveness of fungicides at risk for resistant development and to minimizing crop loss due to resistance development. With the exception of lettered codes, fungicides with the same FRAC code have a similar chemistry modes of action and the propensity for cross-resistance development.

[f] = Potentially acceptable in certified organic programs, but not all formulations of the active ingredient are acceptable.



## Useful links

UMass Fruit Advisor: <http://umassfruit.com>

UMass Fruit Notes: <http://umassfruitnotes.com>

Scaffolds Fruit Journal: <http://www.nysaes.cornell.edu/ent/scaffolds/>

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

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>)

2013 New England Tree Fruit Management Guide (<http://fruit.umext.umass.edu/2013netfm/>)

---

*The next Healthy Fruit will be published on Tuesday, August 6 (in TWO weeks) 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.*



### PLANT TISSUE SAMPLE SUBMISSION FORM: TREE FRUIT

See the reverse side of this form for sampling instructions, test descriptions and fees.

Name:	Telephone No:
Business Name:	E-mail address:
Street Address:	<b>Method of receiving results</b> <input type="checkbox"/> US Mail (Choose one or include \$2 fee for both) <input type="checkbox"/> E-mail
City, State, and Zip	

<b>Send copy of results to:</b>	Name:	E-mail address:
---------------------------------	-------	-----------------

LAB # (Leave blank)	Sample ID (You create this)	Test requested		Fee, \$
		Standard (\$25)	Standard w/o N (\$18)	
		<input type="checkbox"/>	<input type="checkbox"/>	

Sample Information	
<b>Crop, management, and soil information</b> Date sampled: _____ Crop: _____ Variety: _____ Rootstock: _____ Age: _____ (years) Tree spacing or population: _____ Tree vigor is: <input type="checkbox"/> poor <input type="checkbox"/> moderate <input type="checkbox"/> vigorous Lime: _____ (tons/ac) applied on _____ (date) Fertilizer rate (lbs/tree or lbs/A) and application date(s): _____ _____ _____ Were foliar nutrients applied this season? (Yes / No) If yes, list the rate(s) and date(s) _____ _____ _____ Soil series (if known): _____	<b>Complete this section for problem diagnosis</b> If leaves are discolored, does the color variation occur: <input type="checkbox"/> along leaf margin <input type="checkbox"/> interveinal <input type="checkbox"/> in spots <input type="checkbox"/> over entire leaf Leaves first affected at shoot: <input type="checkbox"/> tip <input type="checkbox"/> base <input type="checkbox"/> over entire shoot Symptoms first seen: _____ (month and growth stage) Describe additional symptoms below:

Office Use Only	
Received	Due
Check#	PO#
Cash	

### **Sampling Instructions**

Leaf samples should be collected around 60 to 70 days after petal fall (between late July and early August for apples). Mid-shoot leaves should be collected from current season terminal shoots on the periphery of the tree.

Sampled trees should represent the general conditions of the orchard in terms of vigor, crop load, etc. For problem diagnosis, it is often helpful to collect and analyze separate samples from both affected and non-affected trees/areas. This allows a direct comparison of nutrient levels and may aid in diagnosing specific nutrient deficiencies.

Each sample should consist of about 50 leaves collected from several trees in the area being sampled. Do not mix leaves from different varieties, soil conditions, tree vigor, or fruit load.

Thoroughly rinse leaves to remove pesticides, foliar applied nutrients, and soil particles then place on clean paper to air-dry. Place air-dried tissue in a small paper bag labeled with your sample ID and complete the submission form. Hand deliver or mail sample, submission form, and a check or money order payable to UMass to the address listed above.

### **Plant Tissue Test Descriptions & Fees**

#### **Standard Tissue Test: \$25.00**

A determination of the Total Tissue P, K, Ca, Mg, Na, Zn, Cu, Mn, Fe, and B. Analysis by ICP Spectroscopy of dry-ashed sample in 10% HCl . Also included Total Nitrogen by catalytic combustion.

#### **Standard Tissue Test Without Total Nitrogen: \$18.00**

Same as standard tissue test but without N