

Subject: New England Grape Notes, July 10, 2009
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New England Grape Notes

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Phenology: Vine growth is at buckshot berries and approaching bunch closure for some varieties in some areas. Frequent rain events have generated frequent infection periods for the major diseases. Disease models have identified high risk levels for Powdery Mildew infections but few have so far been observed. Vineyards should be scouted weekly for disease symptoms and insect damage. The period leading up to bunch closure is critical for managing cluster infections/infestations later in the season.

If you need help identifying symptoms or signs you see in the vineyard, take a look at the Michigan Grape Scouting Guide at <http://www.grapes.msu.edu/id.htm>.

Cluster thinning, shoot positioning and leaf pulling are underway. It's not too late for petiole tissue analysis to check nutrient status of the vines. With all the rain, soils may be leached of some nutrients. It's a little late for any Nitrogen fertilizer, but a light foliar application might be useful.

Marketing:

Here is the New England Cable News story on the kickoff yesterday for the Savor Mass initiative and wine and cheese trail.

<http://www.necn.com/Boston/Business/2009/07/08/Mass-promotes-wine-and-cheese/>

Disease Management:

To view the disease model predictions for southern New England go to

<http://www.hort.uconn.edu/ipm/grapes/htms/oodiseaseriskupd.htm>.

Vermont's IPM Updates can be seen at <http://pss.uvm.edu/grape/newsletters/>.

New York has some grape disease models available at http://newa.nrcc.cornell.edu/newaDisease/grape_dis.

For those interested in organic disease management in grapes, a good resource can be found at:

<http://www.oardc.ohio-state.edu/fruitpathology/organic/grape/index.html>.

Botrytis Update

Alice Wise & Wayne Wilcox, Cornell University

It is worth noting that the senescing caps really seem to be sticking on the young berries this season. These are highly susceptible to botrytis infection, a worrisome development in an already difficult year. From Grape Disease Control, 2008 by Cornell grape pathologist Wayne Wilcox: "The Botrytis fungus is a 'weak' pathogen that primarily attacks highly succulent, dead, injured (e.g. grape berry moth, powdery mildew) or senescing (expiring) tissue such as wilting blossom parts and ripening fruit. The fungus thrives in high humidity and still air [opt temp range is 59- 77°F], hence the utility of cultural practices such as leaf pulling and canopy management to minimize these conditions within the fruit zone. Although the fungus does not grow well in berries until they start to ripen, it can gain entrance into young fruit through wilting blossom parts, old blossom 'trash' sticking to berries, and scars left by the fallen caps. Such infections remain latent (dormant) all the way through harvest, but some may become active as the berries start to ripen. Latent infections can be common following a wet bloom period, the vast majority remain inactive through harvest and never rot the fruit. Factors that cause latent infections to activate (cause disease) are incompletely understood. The perfect recipe for Botrytis – a wet bloom period (to establish latent infections) followed by a wet preharvest period to activate and spread infections.

There is no single 'correct' timing for fungicide applications in a Botrytis management program. In some years, early sprays (bloom and bunch close) have been more effective than later sprays (veraison and preharvest). In more years, the opposite has been true. In some years, two early spray OR two late sprays provided the same control as all four; in a majority of years, all four provided the best results." Wilcox goes on to say that botrycides at bloom may help limit latent infections but Botrytis is a difficult disease if conditions are conducive, even with fungicides. It is absolutely critical to address shoot thinning, leaf pulling in the cluster zone and thinning big clumps of clusters to promote air circulation and spray penetration. Highly susceptible varieties include Chardonnay, Pinot Noir, Sauvignon Blanc, Gewurztraminer. Merlot is susceptible if harvest is wet. Note that most cluster rots in the northeast include Botrytis but there are actually a number of fungi that cause other bunch rots and sour rots. These will be addressed in a future newsletter.

Materials – choices are Vanguard, Scala (chemically similar to Vanguard), Elevate, Rovral. An alternate Botrytis strategy is to

use a strobilurin (Flint or Pristine) with activity against Botrytis. See labels for details. With any of these strategies, leaf pull if possible prior to application. With the cost of materials, they must be used wisely. (**Source:** *Long Island Fruit & Vegetable Update, July 2, 2009*).

Focus on Powdery Mildew Control in Wine and Juice Grapes *Annemiek Schilder, Michigan State Univ.*

Some powdery mildew has been seen on 'Concord' berries and on leaves of unsprayed Chardonnay grapes. At this point, the colonies are still very small and may be hard to see with the naked eye. We have had multiple occasions for primary ascospore release this spring: 0.1 inch of rain at a temperature of 50°F or more. When the cleistothecia overwintering in cracks in the bark are sufficiently wetted, infectious ascospores are discharged within four to eight hours and are carried by wind to susceptible plant tissues. The more of these events occur in the time period from before bloom until four weeks after bloom, the higher the risk of fruit infection. Remember that grape berries are highly susceptible to powdery mildew infection in the first two to three weeks after bloom. A spray missed during this period can result in a season-long battle against powdery mildew on the clusters.

Once the fungus gets established, it does not need water or rain for infection – in fact, heavy rain is detrimental because it washes the spores from the leaves and causes them to burst. The fungus grows as circular colonies on the plant surface and produces secondary spores (conidia) that are windborne and cause new infections. Under optimal conditions, the disease can spread rapidly, as the time from infection to production of conidia can be as short as seven days. Although infections can occur at temperatures from 59 to 90°F, temperatures between 68 and 77°F are optimal for disease development. Temperatures above 95°F inhibit spore germination, and the fungus may be killed at temperatures above 104°F.

Berry age has a marked effect on susceptibility to powdery mildew. Researchers in New York showed that when clusters of 'Chardonnay,' 'Riesling,' 'Gewürtztraminer,' and 'Pinot Noir' were inoculated from pre-bloom to six weeks post-bloom, only fruit inoculated within two weeks of bloom developed severe powdery mildew. Berries became substantially resistant to infection by three to four weeks after bloom, resulting in diffuse, non-sporulating colonies on berries, and were virtually immune at six to eight weeks after bloom. Therefore, early sprays (from immediate pre-bloom until three to four weeks after bloom) are critical for preventing powdery mildew on the clusters. This usually coincides with critical sprays for black rot. For wine grapes, control of late and barely visible infections is also important as these can predispose the grapes Botrytis bunch rot and sour rot later in the season.

Sulfur remains an effective and inexpensive protectant fungicide for powdery mildew control in non-sulfur-sensitive grape varieties. The most effective systemic fungicides for powdery mildew control are the sterol inhibitors (Nova, Elite, Vintage, etc.) and the strobilurin fungicides (Pristine, Sovran, Abound and Flint). New fungicide options that provide good to excellent control of powdery mildew are Quintec, Endura, and Adament (mixture of Flint + Elite). Do not apply Pristine, Flint or Adament to 'Concord' grapes, as crop injury may result. JMS Stylet Oil and Sulforix are good materials to apply after infection has started to show up. Applying these materials in sufficient water is important to get excellent coverage because these compounds have to contact the fungal colonies to be effective. Do not apply Sulforix to sulfur-sensitive grapes.

Luckily, we do not have any reports of fungicide resistance to strobilurins in the grape powdery mildew fungus in Michigan. However, sterol inhibitors appear to be less effective than they used to be in vineyards where they have been heavily used for many years. It would be best to not solely rely on SI's during the most critical period for fruit infection (immediate pre-bloom until three weeks after bloom), but alternate or tankmix with other effective fungicides. Over the last two years, we have noticed that Ziram as a tank-mix partner with Elite did improve control of powdery mildew over Elite by itself. (**Source:** *Michigan Fruit Crop Advisory Team Alert, July 7, 2009*)

Insect Management:

Grape Phylloxera

Dr. Nikki Rothwell, North West Michigan Horticultural Research Center

Grape phylloxera, *Daktulosphaira vitifoliae*(Fitch), are insects that rarely make serious pest status in areas with our sandy soils; they are considered to be more problematic in regions with heavier clay soils. Despite the fact we rarely see damaging numbers of phylloxera in the north, we remind growers to be vigilant about control. This caution should be particularly noted in choosing a phylloxera-resistant/tolerant rootstock for newly planted vines. If populations reach high enough levels, the foliar or aerial part of the

Phylloxera life cycle can result in premature defoliation, reduced shoot growth, and reduced yield and quality of the crop. We often observe foliar damage on wild grape, *labrusca* and some *vinifera* vineyards as raised galls on the undersides of leaves ([Figure 1](#)) in the eastern part of the U.S. The root form of phylloxera stunts growth of susceptible vines and can kill them, but this form prefers vines grown in heavy clay soils. Phylloxera damages the roots by feeding on growing rootlets, which then swell and turn yellowish; dead areas eventually develop at the feeding sites.

These insects are a bit strange looking and have an even stranger life cycle. Phylloxera are small, yellow, aphid-like insects. In the foliar form, they reside inside the galls and can only be viewed once the gall is opened ([Figure 2](#)). Phylloxera overwinter as a winter egg under the bark of older canes or trunks or as nymphs on grapevine roots. The winter egg becomes the 'stem mother', and she moves to a shoot tip to feed. Feeding induces gall formation, and eventually the stem mother becomes enclosed within a small gall on the underside of the leaf. Females are capable of producing several hundred eggs by parthenogenesis (fertilization without males). First instar nymphs (crawlers) hatch from eggs, emerge from galls, and move to shoot tips where they begin feeding. This behavior induces new gall development. During the summer, some of the foliar crawlers move through cracks in the soil to reach grapevine roots.

Phylloxera can also overwinter on grapevine roots as nymphs, and as soil temperatures warm up in the spring, crawlers resume feeding. Root feeding results in two types of galls: a) nodosities are galls formed on small rootlets, and these galls are thought to result in little damage to the vine, or b) tuberosities are galls formed on larger, older parts of the root, and these galls can eventually cause vine mortality. In late summer and early fall, some root-infesting phylloxera develop into fully winged adults. These sexual forms mate and the female deposits a single overwintering egg under grape bark, and the life cycle begins again for another season. (**Source:** *Michigan Weekly Vineyard IPM Scouting Summary, July 6, 2009*)

Japanese Beetles Joe Fiola, Univ. of Maryland

Japanese beetles are already making their presence known in Maryland vineyards. They create large holes in the younger leaves of your vines and cause severe lacing in heavy infestations. Always be extra careful in young vines as they cannot tolerate severe defoliation.

- Japanese beetles (scarab beetle family) are approx. $\frac{1}{2}$ inch with metallic green bodies and copper-colored wings.
- They are voracious feeders and attack the foliage of numerous woody and ornamental species (roses are a preferred food) as well as grapevines.
- Adults emerge from the soil and begin moving into vineyards in late June.
- Scout for damage and the presence of beetles from mid-late June through mid-late August.
- They tend to feed on younger leaves.
- They remain present for about 2 months during which they feed, mate, and the female lays eggs in the soil.
- Because they are constantly emerging and moving into the vineyard, constant scouting and vigilance is required and control measures may be needed quickly and even frequently.
- Remember that well-established vines can tolerate significant foliar feeding by Japanese beetles, when it is the upper younger leaves that are above the top catch wire and about to be hedged off anyway.
- In an extreme infestation without control vines can be completely defoliated.
- Younger vines tolerance is much less because total leaf area can easily be defoliated which can lead to increased winter damage and vine death.
- Japanese beetles become established in an area (in the turf) and populations rapidly build up over a couple of years.
- Once established, the chances of eradicating them from an area are slim.
- They have a very broad list of alternate species they feed on and have been known to fly for up to 5 miles.
- Control:
 - If you have a few in the vineyard, just "squish" them on the leaf. There is evidence that the dead beetles may repel others.
 - The best materials for controlling Japanese beetles are Sevin®, Danitol®, Assail®, and Avaunt®.
 - Imidan® (14 day REI!) and Malathion® are also labeled for control.
 - Surround® can be used to protect the foliage from feeding and has been very effective in some locations.
 - Remember the risk of using frequent, repeated sprays of Sevin® is that it also kills many beneficial insects (including mite predators) which can then lead to a mite outbreak. Especially

in hot dry weather.

- Where Japanese beetle populations are low or beetles are just beginning to be seen and fewer sprays are needed, using a "softer" insecticide can reduce the risk of mite outbreaks.
- Always read the pesticide label for complete information and product safety.

For further information on the biology and control of Japanese beetles, check out the following websites:

<http://www.ento.vt.edu/Fruitfiles/JB Grape.html>

<http://www.uky.edu/Agriculture/Entomology/entfacts/trees/ef409.htm>

<http://ohioline.osu.edu/b919/0011.html>

(*Source: Maryland Timely Viticulture, Early July 2008*)

Grape Tumid Gallmaker

Rufus Isaacs, Michigan State Univ.

Galls caused by the grape [tumid gallmaker](#) are showing up on leaves at the Van Buren Concord site. The grape tumid gallmaker is a small fly that lays its eggs on the foliage and the hatching larvae feed within the protection of the gall that forms around them. While these galls initially appear ominous, they are in fact mostly harmless, only rarely reaching levels that damage the vines. The only times when they may become a problem is if populations are numerous enough that flower clusters in the spring are damaged by galls, or if galls are numerous enough to reduce vine vigor. Even a leaf covered with galls, such as the one to the right, only has 19% of its surface area affected (as measured using computer software). That means 79% of this leaf is still able to photosynthesize just fine. (*Source: Michigan Weekly Vineyard IPM Scouting Summary, July 6, 2009*)

Grape berry moth

Rufus Isaacs, Michigan State Univ.

[Grape berry moth](#) is common in commercial and backyard vineyards in eastern North America. It is a native insect with wild grape as its historical host. There are two or more generations of larvae per year. Grape berry moth spends the winter as a pupa in leaf litter in and around vineyards. First generation adults emerge from the pupae around bloom. Male and female moths mate and then females lay circular, flat eggs directly onto the cluster. The eggs can be difficult to find because of their small size (approximately 1 mm diameter). Their shiny exterior can be used to detect them, especially with a hand lens. Eggs parasitized by wasp parasites turn black.

Larvae hatch from the eggs in three to six days, depending upon temperature, and feed on the cluster until they have developed to full size.

Larvae of the first generation feed on young grape clusters and may remove sections of clusters. Then, when berries are formed, the young larvae burrow into the fruit. Webbing and larvae are visible in the small clusters during and after bloom. Damage from redbanded leafroller can be mistaken for grape berry moth at this time, so it is important to identify the larvae to determine the appropriate management strategy.

Second generation larvae feed on the expanding berries, and feeding sites are visible as holes. Larvae may web together multiple berries.

Larvae of the third generation feed inside berries before and after veraison. Berries may be hollowed out by feeding, and larvae at this time may contaminate harvested fruit. Damage by grape berry moth after veraison predisposes berries to infection by Botrytis and sour rots and can attract fruit flies, wasps and ants.

In Michigan, Pennsylvania, northern Ohio and New York [and in New England], it is important to scout in mid- to late July for eggs and larvae. Detecting egg laying and egg hatch helps accurately time insecticide controls. In high-pressure vineyards, egg laying may continue over many weeks late in the season. Infestation is often greater on the border than the interior of vineyards, particularly near woods or hedgerows.

Regular cluster sampling in the vineyard interior and at the borders (particularly next to woods) can help to assess berry moth infestation levels and determine management needs. (*Source: Michigan Weekly Vineyard IPM Scouting Summary, July 6, 2009*)

Weed Management: Now is a good time to assess the effectiveness of earlier weed control measures. Walking the vineyard and mapping areas where weeds have broken through earlier measures provides valuable information for corrections this year and improvements next year. Second applications of pre-emergent materials may be needed at this time to carry through the remainder of the summer. If

weed growth has started in some areas, a non-systemic burn down or contact material may be useful. Some growers are moving toward in-row mowing or cultivation instead of herbicide applications. This can work well but requires specialized equipment. It can also be tricky on sloping and stony terrain. More on this in future issues.

Weather data: compiled from various sources for 7/1/09 (*6/30/09)

Region/Location	2009 Growing Degree Days		Precipitation 1-week gain
	1-week gain	total accumulation for 2009	
Cape Cod	96	--	--
Southeast MA	103	767	0.52"
East MA	119	834	0.94"
Metro West (Waltham) MA	118	824	1.10"
Metro West (Hopkinton) MA	121	909	2.25"
Central MA	115	760	1.17"
Pioneer Valley MA	129	842	0.43"
Berkshires MA	145	914	1.10"
South Hampton, NH	--	797*	--

Vermont Weather Data can be found at: <http://pss.uvm.edu/grape/2009DDAccumulationGrape.html>.

Connecticut Weather Data can be found at: <https://www.hobolink.com/s/do696313715dd96f86b25f3552cc1f47>

Meetings:

A Cold Climate Grape Workshop and Tours -- July 18, 2009 -- At the UVM Hort. Res. Center in South Burlington and continuing at the Cornell Baker Farm in Willsboro, NY. Details and directions can be found at: <http://pss.uvm.edu/grape/AnnouncementJointUVM-CornellEventsJuly182009.pdf>

FYI - check out the newly formed [Massachusetts Farm Winery and Growers Association](#) and [New Hampshire Winery Association](#) and the [Vermont Grape and Wine Council](#). These associations are of, by and for you! Join today!!

For Massachusetts residents, check out the new [Massachusetts "Aq Tag" license](#) plate. Each purchase can yield \$15 for the Massachusetts Farm Winery and Grower's Association through a check-off plus pooled funds available for various programs or competitive grants. Get yours today!

This message is compiled by Sonia Schloemann from information collected by: Arthur Tuttle, Dan Cooley and students from the University of Massachusetts and University of Connecticut and Frank Ferrandino from Connecticut Ag Experiment Station. We are very grateful for the collaboration with UConn.

We also acknowledge the excellent resources of [Michigan State University](#), Cornell Cooperative Extension of Suffolk County, and the [University of Vermont Cold Climate Viticulture Program](#). See the links below for additional seasonal reports:

[University of Vermont's Cold Climate Grape Growers' Newsletter](#)
[UConn Grape IPM Scouting Report](#)

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