Subject: Re: New England Grape Notes, June 25, 2010
From: Sonia Schloemann <sgs@umext.umass.edu>
Date: Fri, 02 Jul 2010 16:19:10 -0400
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New England Grape Notes

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Phenology: vines are post bloom with development of buckshot berries and approaching bunch closure for some varieties in some areas.

Publications: An excellent publication from Cornell University on the production of Organic Grapes is available on-line at http://nysipm.cornell.edu/organic%5Fguide/grapes.pdf.

- NEWA Models Available: An excellent new resource for identifying disease infection periods as well as timing for Grape Berry Moth controls based on degree day models can be found at http://newa.cornell.edu/index.php?page=crop-page-grapes.

Canopy Management:

Canopy Management

Donn Johnson, University of Arkansas

This is the critical time period for canopy and crop load management practices to be done!

Shoot positioning of vines on high-wire trellis system should be underway in all areas of the region by now. This should begin when shoots are long enough to remain in place once they are positioned. For most varieties this occurs when they are around 20-24 inches in length. Shoot positioning is accomplished by "combing" the shoots, that is, separating them and positioning them perpendicular to the cordon and in a downward orientation. Delaying this operation can make it more costly to accomplish as the tendrils of adjacent shoots will begin to wrap around each other, making separating the shoots without breaking them more difficult.

Crop load adjustment should be done within two weeks past fruit set to get the most benefit from cluster thinning. Small-clustered cultivars such as Vignoles or Norton are generally not cluster-thinned unless they are young and still undergoing canopy development. With moderate- to large-clustered cultivars it is recommended to follow the 2-1-None Rule: At fruit set, if the shoots are greater than 20 inches in length, retain 2 clusters. If shoots are between 8 and 20 inches in length retain 1 cluster. If they are less than 8 inches in length, retain none.

Leaf Removal should begin shortly after fruit set and be done by the time the berries are pea-sized. It is accomplished by removing 6-8 leaves from the basal area of the shoot around the fruit clusters and should be done on the east (N-S rows) or north (E-W rows) sides of rows. Leave foliage of the south (E-W rows) or west (N-S rows) sides to protect the fruit from overexposure and sunburn. Leaf removal creates a favorable environment for developing high-quality fruit by allowing more sunlight and air movement into the fruiting zone. At the same time it creates an unfavorable environment for diseases by decreasing humidity within the canopy and promoting more rapid drying of fruit after wetting events such as rains and ews. It can decrease disease pressure from powdery mildew which is favored by shaded, humid conditions and from bunch rot diseases. It also facilitates better spray penetration and coverage of the fruiting zone and canopy interior. (Source: Missouri/Arkansas Vineyard and Pest Mgt. News, June 13, 2009)

Disease Management:

Powdery Mildew Post Infection Control

Alice Wise and Wayne Wilcox, Cornell University
(Photos by Tim Weigle, Cornell University)

The time to check fruit for powdery mildew and intervene if necessary is now. There are several options to clean up powdery mildew infection including JMS Stylet Oil;

Nutrol (monopotassium phosphate); potassium bicarbonate products like Kaligreen and Armicarb 100; and Oxidate (hydrogen peroxide). Organic options are organic formulation JMS, Kaligreen, and Oxidate. Sulfur has good activity against very young infections, but is not great once it's easy to see that you have a problem to deal with. There are organic formulations of sulfur. None of these materials will clean up and sanitize infected fruit. At best, they will only kill the PM colonies, leaving scarred fruit but halting the spread of infection to clean fruit or uninfected parts of the individual cluster or berry. Regardless of strategy, it is probably wise to check fruit closely (look at cluster backsides, clusters jammed up against posts, etc.) shortly after treatment and re-treat at the proper interval if PM infection persists. These materials work strictly by contact, and it's virtually impossible to contact every square inch of every berry. That being said, the more coverage you get, the greater the effect you'll obtain.

• Stylet Oil: Of the products listed, Stylet Oil has provided the best eradication of active infections and is the only material that provides any forward protection. In addition to its post-infection and eradicative activities, the best information available indicates that Stylet Oil provides at least 3 days, sometimes more, of forward protection under dry weather conditions. However, the oil residue apparently washes off in as little as 1/3" of rain, after which most of the protective activity is gone. Thorough coverage is absolutely essential for this or any of the other post-infection PM materials to work. Direct spray at the fruit zone with lots of water. Experience dictates that Stylet Oil works if it makes contact with the infected berries. If the clusters are packed in, if leaf pulling hasn't been done, spray coverage will be compromised and PM will persist. If choosing StyletOil, read the label thoroughly as it is incompatible with a number of key materials including sulfur. Note that JMS Stylet Oil has both a standard and an organic formulation. They differ in the inert ingredients. Also be aware of warnings about application in hot weather (phyto risk).

• Oxidate: If sulfur has been a regular part of the schedule and the proper interval has not passed, Oxidate is an option. The Oxidate label calls for consecutive sprays at 128 fl. oz per 100 gallons. This is not a cheap program. Time also may be a factor - getting the leaf pulling done and getting consecutive cluster sprays on is time prohibitive for some growers. There have been several questions on tank mixing Oxidate. BioSafesystems in the past has felt that tank mixing Oxidate with either DF or a liquid sulfur should be no problem. To be sure, you might do a jar test first as per the Oxidate label.

• MKP, potassium bicarbonates: These are alternatives to Oxidate when the use of sulfur precludes the use of oil. According to Wilcox, Nutrol, Kaligreen and Armicarb function in the same topical, eradicative, "salt on a slug" mode. Again, these do not provide forward protection and they work best when PM infection is in the very early stages. Our experience with Kaligreen in 2008 verified that coverage was directly related to the efficacy of the spray. Also, remember that these materials are post-infection only so that forward protection of young berries is still necessary. (*Source: Long Island Fruit & Vegetabe Update, No. 16, July 1, 2010*)

Viticure™, a Fungicide Specific for Grapes

Annemiek Schilder, Michigan State University

Viticure™ (triflumizole) is a fungicide belonging to the sterol inhibitor (SI) class (Group 3) specifically labeled for use in grapes. It was marketed previously as the fungicide Procure, so it is not a new fungicide. Viticure™ has excellent efficacy against powdery mildew. According to the manufacturer, Viticure™ also provides suppression of black rot and Botrytis bunch rot. Trials in Michigan showed good activity against black rot, but black rot is not listed on the label. Sterol inhibitors are not usually considered to be effective against Phomopsis. However, based on trials in Michigan, Procure also had moderate to good activity against Phomopsis and some control can be expected when used in a fungicide program.

Viticure™ is systemic and has protective and curative properties, translaminar and vapor activities, and good weatherfastness. The label carries a "caution" signal word. Viticure™ has a 12-hour Restricted Entry Interval (REI) and a seven-day Pre-Harvest interval (PHI). This product is toxic to fish (like many fungicides), so care must be taken around bodies of water. Viticure™ is a water-based formulation (soluble concentrate) that mixes easily and is compatible with most tank mix partners. Viticure™ does not contain oil or solvents and is formulated to improve foliar coverage and reduce visible residues on the crop. In addition, the new liquid formulation is not abrasive to field equipment and will not clog strainers and screens of the spray equipment. Sulfur can be applied with or in alternation with Viticure™ without any problems. Tank-mixing with sulfur is recommended where fungicide resistance is suspected.

The recommended use rate for Viticure™ is 4-8 fl oz per acre, which provides the grower flexibility to adjust the rate in response to disease pressure and weather conditions. At the 4-oz rate, the product is quite economical. At the 4-fl

oz rate, 14 days of protection can be expected, whereas at the 6-fl oz rate, the vines are protected from 18-21 days. Start applications before bloom and apply on a 14- to 21-day interval, depending on the rate used and disease pressure. For the most susceptible varieties, use 6-8 fl oz/acre and/or shorter spray intervals. When disease pressure is low (e.g., early in the season), use 4 to 6 fl oz/acre and/or extend the spray interval to 21 days. Use the 6-fl oz rate for suppression of Botrytis and black rot.

Use sufficient volume to ensure good spray coverage. To minimize the risk of fungicide resistance development, do not make more than two applications of Viticure™ before changing to a registered fungicide with a different mode of action. Do not apply more than 32 fl oz of Viticure™ per acre per season. Viticure™ has not been shown to cause adverse plant growth regulating (PGR) activity. This allows it to be used at any time during crop development – from first signs of new growth, through bloom and throughout berry development – without concern about berry size and shape, or possible carry-over effects on flowering and fruit development. Always read and follow label directions when using this product. (Source: Michigan Fruit Crop Advisory Team Alert, June 29, 2010)

Alert: Grape Anthracnose reported in CT and VT.

See http://www.hort.uconn.edu/ipm/ and http://pss.uvm.edu/grape/newsletters/2010/VermontGrapeUpdate06242010.pdf for pics and more info.

Insect Management:

Mid-Season Grape Berry Moth **Management**
Rufus Isaacs, Michigan State University

With bloom behind us, we approach the time of the season when the second generation of grape berry moth begins. Recent vineyard monitoring and scouting in southwest Michigan showed that moth flight had declined and there was little egglaying last week. Larvae that were not controlled around bloom-time are already inside berries or are starting to pupate. This indicates a lull in the activity of grape berry moth before the second generation starts. Growers should now consider the optimal time to protect berries from grape berry moth in vineyards, as the second generation of this pest is expected to start laying eggs this week in southwest Michigan.

If you recorded the date of wild grape bloom in late May-early June, that can now be used to predict the start of second generation egglaying using the MSU grape berry moth degree day model (online at www.enviroweather.msu.edu, look for grape berry moth model in the fruit section). For example, wild grape bloomed on May 24 at SWMREC in Benton Harbor, and using that start date, or biofix, the model predicts egglaying will start 810 degree days later, which is predicted to be June 30 in that region. For other parts of the state, the dates may be different based on the date of wild grape bloom and the accumulated degree days for 2010 in other regions. For example, we would expect a later start to egglaying of the second generation in Fennville, and especially in the Traverse City region.

This season provides a good example of why a degree day model might help growers time applications better than a calendar approach. Last year, we made applications at 810 degree days on July 14, and we are two weeks earlier using the model this year.

The predicted start of egglaying is the optimal timing for application of insecticides that are most active on eggs and young larvae, such as Intrepid. For this product, excellent cluster coverage is essential, but once it is on the clusters, long residual control of grape berry moth (two to three weeks) and rain-fastness is achieved. For products that are broad-spectrum that are best timed for egg hatch, applications should be delayed to be timed 100 degree days after 810, i.e. at 910 degree days. For the example at SWMREC described above, the predicted daily highs and lows indicate that 910 degree days will be reached just after Independence Day (July 4).

In our recent research trials, spray programs that timed applications for berry moth control based on the degree day model outperformed those that used a calendar approach. This was the case for broad spectrum insecticides, and even better control was achieved when we tested degree-day timed sprays using some of the new insecticides that are highly active and long-lasting for berry moth control. For example, in 2009 a program using Intrepid at 8 oz/acre applied at 810 degree days (mid-July) followed by Altacor at 3 oz/acre applied at 1620 degree days (mid-August) provided similar or slightly better control than a Sevin and Imidan program in the mid- and late season timings. The earlier season would move timings of these applications up for this year. Other pest insects may be important in your vineyards, but if you are focusing on berry moth control, degree day-timed applications of long-lasting and effective insecticides applied with excellent coverage provides an effective program to reduce pressure from this pest. (*Source: Michigan Fruit Crop Advisory Team Alert, June 29, 2010*)

Also:
Check out the GBM model on NEWA at: http://newa.cornell.edu/index.php?page=grape-diseases

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. ½ 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/JBGrape.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*)

Weather data: (Source: UMass Landscape IPM Message #17, June 25, 2010)

Region/Location	2010 Growing Degree Days (base 50˚ from March 1, 2010)	
	1-week gain	total accumulation for 2010
Cape Cod	147	869
Southeast MA	142	872
East MA	161	947
Metro West MA	139	851
Central MA	156	861
Pioneer Valley MA	122	906
Berkshires MA	116	811

Additional Weather Data is available form the following sites:

- UMass Cold Spring Orchard (Belchertown MA), Tougas Family Farm (Northboro MA), and Clarkdale Fruit Farm (Deerfield MA) at http://www.umass.edu/fruitadvisor/hrcweather/index.html
- University of Vermont Weather Data from several sites around the state at http://pss.uvm.edu/grape/2010DDAccumulationGrape.html
- New Hampshire Growing Degree Days at http://extension.unh.edu/Agric/GDDays/GDDays.htm
- Connecticut Disease Risk Model Results at http://www.hort.uconn.edu/ipm/

In addition, we are working on integrating new base stations into the Network for Environment and Weather Applications program run by the Cornell IPM team at http://newa.cornell.edu/. This will include the ability to run

disease and insect development models for a wider area. Stay tuned.

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 "Ag 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 and students from the University of Massachusetts
and Frank Ferandino from the University of Connecticut. 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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