News you can use

**Disease management**
Continue to monitor for foliar and fruit diseases. Continue checking susceptible varieties against downy and powdery mildew.

**Insect management**
Continue to scout inside canopies for grape berry moth and leafhoppers. Protect clusters from berry moth in high pressure sites.

**NWMHRS open house today.**
August 19th at 3PM, NW Michigan Horticulture Research Station. Presentations on various fruit topics. Banquet at 5:30PM.

**NW winegrape grower meeting on September 3.** 3:00-5:00PM at Larry Mawby's. Speaker: Rufus Isaacs will discuss late-season grape berry moth management. More info: Erin Lizotte, 231-946-1510.

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**GROWING DEGREE DAYS**

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*5-yr Avg = 2005 to 2009

See enviroweather.msu.edu for more information.
The weather is giving us a bit of relief this week with cooler temperatures and lower humidity. Daytime temperatures have been in the 70s and nighttime temperatures in the 60s with gusty winds really making the trellis squeak today. We have accumulated 3039 GDD base 42 and 2020 base 50. Our 20-year average is much below these 2010 accumulations: 2617 GDD base 42 and 1698 GDD base 50. Over the past week we have received 0.05” rain at the NWMHRS. For more weather information or to check weather stations near you visit enviroweather.msu.edu.

We appear to be in a holding pattern in terms of diseases and pests, with no major developments over the past week. We caught no adult grape berry moth (GBM) this week, but significant larval webbing and feeding damage is still visible in clusters. We conducted a brief survey of area vineyards on Friday, and GBM larvae are at higher levels than we have seen historically. At this point in the season it is easy to spot fruit with active larvae as discoloration of the green berries occurs, simply peel back the skin to confirm the larvae of grape berry moth inside the fruit. We would like to time treatment to target egg laying, unfortunately the model did not appear to accurately predict egg laying this season. If you are seeing active larvae in your vineyard broad spectrum larvacides may be applied. There are a number of effective berry moth materials, (Imidan, Brigade, Danitol, Baythroid, Altacor, Belt, Voliam flexi and Tourismo are all rated excellent). It is important to note that Imidan, Brigade, Danitol, Baythroid, and Voliam flexi are also good leafhopper materials, if you are experiencing substantial leafhopper pressure these products should work well at this time. Potato leafhopper adults continue to be trapped at moderate levels, but no nymph or adult activity was observed on vines this week and few growers report the need for management.

Downy mildew continues to be reported by growers, including those utilizing conventional management programs. We typically see a minimal amount of downy mildew in northwest Michigan, but the humidity this season may be a contributing factor. It is important to keep in mind that the list of fungicides effective against both downy and powdery mildew is short (Abound-reduced risk, Sovran, Serenade Max-OMRI approved, Pritistine-Strobi+boscalid) so even if growers applied fungicides for powdery mildew it may necessary to treat for downy separately. Additional materials active against downy mildew include Abound, Aliette, Prophyt, Phostrol, Bordeaux mix (6lb Cu+6lb hydrated lime), and copper. ProPhyt and Phostrol are your best bet for curative activity; these are highly systemic fungicides and should be applied at maximum rates post infection and also will provide good protection of the fruit from Phomopsis where cane and leaf symptoms
were spotted and are a concern. Be aware of the potential for phytotoxicity with these products when applied at temperatures above 90°F, do not apply to stressed vines.

**Powdery mildew** has been slow to arrive this season but is beginning to show up around the area. It is likely that significant powdery mildew infections will be visible at this time, although we have received no reports of severe infections thus far. The sterol inhibitor fungicides (Rally, Elite, Vintage, Procure) are commonly utilized for powdery mildew control and Sulfur (OMRI approved) can also be utilized on non-sensitive varieties. Adament (Gem+Elite) is also rated as excellent-be sure you know the actual amount of a.i. you are putting on to ensure you are supplying adequate quantities and not exceeding your season long max. Be sure to rotate the fungicidal mode of action to slow resistance development.

**Botrytis** has also been spotted, not surprising given the persistent wetting events as of late and the elevated levels of grape berry moth infestation. We typically time botrytis treatments for veraison and preharvest, but if you have botrytis infections on green fruit management should not be delayed. Under high pressure treatment may be beneficial at bloom, bunch closing, veraison, and preharvest, particularly in tight clustering varieties. Leaf removal is an important horticultural practice that significantly impacts botrytis. Removing leaves allows for increased air and light penetration and well as more thorough fungicide coverage. As bunch closing is occurring at many vineyards there are a number of effective materials against botrytis including Rovral, Vangard-reduced risk, Endura-reduced risk, Serenade Max-OMRI, Scala-reduced risk, and Elevate-reduced risk.

Symptoms of **leafroll virus** are also visible on area vines. Leaves on vines infected with leafroll virus become yellow or reddish purple as the season progresses; the main veins remain green. By late summer, the leaves start rolling downward and at harvest fruit clusters are small, poorly colored, and low in sugar. The disease does not kill the vine but is chronic and is spread primarily via infected nursery stock and the grape mealybug. Within-field spread by mealybug is very slow. If you have sites you would like tested please contact Erin at taylo548@msu.edu or (231)946-1510.

-E.L.
SOUTHWEST

Steve Van Timmeren, Research Technician
Trevor Nichols Research Complex

Grape Berry Moth. Scouting this week showed a leveling off of grape berry moth infested clusters. One site, the Van Buren Concord site, even saw a slight decrease in infestations at the vineyard border. However, each of these sites received an insecticide spray timed for the beginning of GBM egg-laying at the end of July/early August. Most of the infestations at the Van Buren Concord site are older and some older infested berries are beginning to fall off the clusters (see picture). In addition, since Intrepid was applied to this vineyard, several GBM entry holes are visible where the young larva died just inside the berry.

Are we expecting a fourth generation of grape berry moth this year? Given the warm season, the GBM GDD model predicts the next generation of egg-laying to begin at 2430 GDD, near the end of August in SW Michigan (see table). However, in previous years we have seen egglaying by this pest decline into September because as the day lengths get shorter this insect prepares for winter by stopping its life cycle at the pupa stage. That means that the numbers of moths in a fourth generation would be much less. The unknown part of this is what proportion of the larvae will hunker down for the winter in the pupa stage (and therefore not continue the egg-laying). The more this happens, the less of a problem a fourth generation will be. We will continue to monitor SW Michigan vineyards with traps and cluster sampling as harvest approaches, and should have a good sense of the risk of a fourth generation over the coming weeks.

Before you start to worry about another generation of GBM make sure you don’t forget about the current one. Remember that egg-laying is ongoing, so if you haven’t sprayed GBM hotspots for awhile you may want to spray now to catch the tail end of this generation rather than waiting until closer to harvest. Be aware of the PHI restrictions on products as we get closer to picking dates.

Japanese Beetles. Japanese beetles decreased rapidly over the last couple of weeks. In most mature vineyards they shouldn’t be a problem anymore. However on winegrapes and young vineyards they could still cause some damage. Regular scouting should easily identify areas where beetles are congregating.

Phomopsis. Phomopsis is beginning to show up on berries at the Berrien Vignoles site and the Van Buren Concord site. So far infected berries are scattered here and there, but infected berries should increase rapidly over the next couple of weeks. While there isn’t anything you can do about these infections now, you should make notes on which of your blocks are the worst and plan next spring’s protectant sprays accordingly.

Black Rot. Black rot berries are still being found at the Van Buren Concord site, although the number is decreasing slowly as more mummified berries fall off the clusters. A few newer partial berry infections were found this week on some secondary clusters. These infections most likely took place as these secondary clusters were becoming resistant.

Powdery Mildew. Powdery mildew infections have increased slightly on cluster rachises at the Van Buren Concord site. None of the sites scouted for this report had many foliar infections.

Downy Mildew. Downy mildew is showing up in low amounts at the two Concord vineyards scouted for this report. However, levels are still low and don’t warrant any treatments at this time. Since Concord leaves aren’t especially susceptible to downy mildew you probably don’t have to worry about spraying for downy mildew since infections won’t cause complete defoliation of the vine. This is especially true for vineyards with a lower amount of crop that you don’t have to worry about ripening up. Instead concentrate on watching and protecting your susceptible varieties such as Niagara.

Fig 4. Phomopsis infected berries on Vignoles in Berrien County; Photo: S. Van Timmeren.

<table>
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Botrytis. So far Botrytis continues to only be present at the Allegan Chardonnay site. We expect some Botrytis to begin showing up soon at the Berrien Vignoles site and the two Concord sites, but none has shown up so far. Cluster infections at the Allegan Chardonnay site are not spreading to adjacent berries as much and infected berries are beginning to dry out and shrivel up. Remember that a protectant spray applied at veraison is the single most important thing you can do to decrease Botrytis infections at harvest.

Growth Stages. Veraison is well underway at the Berrien Vignoles and Berrien Concord sites. At the Van Buren Concord site primary clusters are beginning to change color, but secondary clusters are still green. Clusters at the Allegan Chardonnay site are still mostly at the green fruit stage, although veraison is not far off.

-S.V.
Grape anthracnose

Anthracnose is a common disease on grapes in humid, warm regions of the United States. Symptoms are showing up in various vineyards due to rainy spring and early summer. It was first diagnosed on table grapes in Michigan in 2001, although it may have been present in the state for a long time. Anthracnose has also been detected on table, juice, and wine grapes in various locations in Michigan. Grape cultivars that are most susceptible are ‘Mars’ and ‘Marquis’ table grapes, ‘Vidal’ and ‘Frontenac’. ‘Niagara’ is less susceptible. Anthracnose has also been observed in ‘Marquette’, a new hardy wine grape cultivar from Minnesota. In Ohio, sporadic outbreaks of anthracnose have occurred in ‘Vidal’ and ‘Reliance’ vineyards. Anthracnose reduces fruit quality and yield, kills shoots, and weakens the vine. Symptoms may be mistaken for a severe case of Phomopsis. The disease can be very destructive and difficult to control in affected vineyards.

Symptoms. Symptoms can occur on all green parts of the plant, including leaves, petioles, tendrils, shoots, cluster stems, and berries. However, lesions on shoots and leaves are most commonly observed. Symptoms on young, succulent shoots first appear as numerous small, circular, and reddish spots. Spots then enlarge, become sunken, and develop gray centers and raised, dark red to purple edges. Lesions may coalesce, causing a blighting of the shoot (Figure 7). Infected shoots also become brittle and break easily. Leaf spots are often numerous and circular to angular. Lesions may be scattered over the leaf or along the veins. When veins are affected, especially on young leaves, the lesions prevent normal development, resulting in leaf curling (Figure 8). The necrotic center of the lesion often drops out, creating a shot-hole appearance (Figure 9). This differentiates anthracnose from Phomopsis lesions, which stay intact. Young leaves are more susceptible to infection than older leaves.

On berries, small, reddish brown circular spots initially develop. The spots then enlarge to an average diameter of 1/4 inch and may become slightly sunken. The lesions have darker edges with a lighter center. Lesions with dark spots in the center resemble a bird’s eye, leading to the common name “bird’s eye rot” (Figure 10). Lesions may extend into the pulp and cause the fruit to crack but the berries do not actually rot (Figure 11). Lesions on the cluster rachis and pedicels may lead to malformation and twisting of the rachis and development of cork-screw-shaped clusters (Figure 12). Clusters are highly susceptible from before flowering to bunch closure.

Biology. Anthracnose of grape is caused by the fungus *Elsinoë ampelina*. The fungus overwinters on infected shoots as sclerotia (hardy clumps of mycelium). In the spring, sclerotia on infected shoots germinate to produce abundant spores (conidia) when they are wet for 24 hours or more and the temperature is above 36°F. Conidia are spread by splashing rain to new growing tissues. Another type of spore, called an ascospore, is produced within specialized fruiting structures and may also form on infected canes and berries left on the ground or in the trellis from the previous year. Ascospores are airborne. The importance of ascospores in disease development is not clearly understood.

Continued
Conidia are by far the most important source of primary inoculum in the spring. In early spring, when free moisture from rain or dew is present, conidia germinate and infect succulent tissue. Conidia germinate and are able to infect plant tissues at temperatures ranging from 36 to 90°F. Disease symptoms develop approximately 13 days after infection occurs at 36ºF and at four days after infection occurs at 90°F. Heavy rainfall and warm temperatures are ideal for disease development and spread. Most infections occur early in the growing season and young tissues are more susceptible. During wet weather, gelatinous conidia (spores) form in acervuli in the lesions and are dispersed by rainsplash. These conidia are responsible for continued spread of the disease throughout the growing season.

Grape anthracnose is often introduced with the planting material and may take some time to develop and spread before it becomes noticeable in the vineyard. Anthracnose has also been observed on wild vines, but it is not known whether strains from wild grapes can infect cultivated grapes.

Management.

1. Start with clean planting material from reputable nursery. If you see symptoms on planting material, do not plant these vines.
2. Prune out and destroy (burn) diseased plant parts during the dormant season. This includes infected cane and clusters.
3. Avoid planting susceptible cultivars.
4. Canopy management can aid in disease control. Any practice that opens the canopy to improve air circulation and reduce drying time of susceptible tissue is beneficial for disease control. These practices include selection of the proper training system, shoot positioning, and leaf removal.
5. Fungicide recommendations for anthracnose control consist of a dormant application of lime sulfur in the fall and/or spring. Effective fungicides for application during the growing season are mancozeb, Pristine, Sovran, Abound, and Endura. Rally, Elite, and Rubigan have good efficacy; and Ziram, Captan, and Sulfur have moderate efficacy.
2010 NW Wine Grape IPM Updates
More information: Erin Lizotte, 231-946-1510.
September 3
3-5PM
L. Mawby, Suttons Bay
Speaker: Rufus Isaacs

2010 NWMHRS Annual Open House
More information: Nikki Rothwell, 231-946-1510.
August 19
NWMHRS, Traverse City

2010 TNRC Field Day
September 28
1-4PM
TNRC, Fennville
Speakers: Rufus Isaacs, Annemiek Schilder, John Wise, Larry Gut, Mark Whalon, George Sundin.

2010 Great Lakes Fruit, Vegetable, & Farm Market Expo
More information: Mark Longstroth, 269-330-2790 or Diane Brown-Rytlewski
269-944-4126 X4012.
December 7-9
DeVos Place Convention Center, Grand Rapids
Grape sessions are being planned.

2011 SW Hort Days
February 9-10 (Tentative)
Lake Michigan College, Benton Harbor