Weekly Vineyard IPM Scouting Summary
Report for the week of June 22, 2009
Southwest Michigan

Upcoming Grape IPM Evening Meetings:

** The grape IPM evening meeting for the month of June is coming up this Thursday night, June 25, 2009 at the Tim Seppala farm (see maps). The meeting will take place from 6:00pm to 8:30pm with the free dinner beginning at 6:00pm. We will be discussing insects and diseases that you should be thinking about at this point in the season, as well as how to look for them and what to do if you find them. One RUP credit is available for this meeting. We look forward to seeing everyone there!

** To get to the Tim Seppala farm take I-94 to the Paw Paw/Lawton exit (exit #60) and turn south onto M-40. Once you get to Lawton turn east on 3rd street (CR 358) and take it until you get to 28th street (CR657), where you'll turn east. Take 28th street south to country road 354 where you need to turn east. The meeting will take place adjacent to the hoop barn at the Tim Seppala farm on the south side of the road. If you get to county road 652 you've gone too far.

Upcoming Evening Grape IPM Meetings To Put On Your Calendar:

** June 25: Tim Sepalla farm, Lawton (6-8pm, free dinner, 1 RUP credit)
** July: No evening meeting in July due to Viticulture Day on July 29
** August 13: Lemon Creek Winery, Berrien Springs (6-8pm, free dinner, 1 RUP credit)
**Grape Berry Moth:**

**GBM Infestations-First Incidence:**

<table>
<thead>
<tr>
<th>Year</th>
<th>Allegan Chardonnay</th>
<th>Berrien Concord</th>
<th>Berrien Vignoles</th>
<th>Van Buren Concord</th>
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<td>6/10</td>
<td>6/16</td>
<td>6/15</td>
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</table>

**If you're scouting for GBM infestations right now your first clue will be several young berries webbed together (see picture below). When you find one of these clumps tease it apart and look for a light yellow/green caterpillar in the middle (see picture below). Be careful not to confuse flea beetle and red-banded leafroller larvae for GBM. Flea beetle larvae are yellow/brown with dark spots and a black head, while leafrollers are usually very pale in appearance (including their head). GBM larvae start out a light yellow color and gradually change to yellow/green, dark green, and finally purple. They have a dark head unlike the leafroller larvae.**

**GBM caught in traps at Berrien Concord site in 2009 and the previous four years.**

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**Grape Berry Moth Model GDDs:**

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<tr>
<td>Berrien Vignoles</td>
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<td>245</td>
<td>398</td>
</tr>
<tr>
<td>Van Buren Concord</td>
<td>66</td>
<td>141</td>
<td>316</td>
</tr>
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</table>

**Growing degree days continue to accumulate for the GBM model. Egg-laying for the second generation of GBM should begin around 810 GDD from biofix. If you want to keep track of the GBM GDDs near where you are, the Enviroweather.msu.edu web site has the model up on it. Click here to see the GBM GDD accumulation for SWMREC in Benton Harbor.**
Leafhoppers:

** Potato leafhopper nymphs were found in scouting at all four sites scouted for this report. If you have sensitive wine grape varieties you should keep a close eye out for nymphs as well as the leaf yellowing and curling associated with them.

** A few grape leafhopper adults and nymphs were found at the Van Buren Concord site. Look for adults and nymphs hiding on leaves on the inside of the canopy.

Japanese Beetles:

** So far no Japanese beetles have been found at any of the four sites scouted for this report. However, over the past five years of scouting at these sites, JBs usually start to show up in the last couple weeks of June. So, we may see a few next week, but they won't be at levels to be concerned about for at least a couple of weeks yet.
Phomopsis:

** Phomopsis leaf infections continue to decrease gradually, although they are still higher than the previous three years.

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**Phomopsis infections on leaves at the Berrien Concord site in 2009 and the previous three years.**

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Disease Control In Grapes During And After Bloom:

Anemiek Schilder  
Plant Pathology

The bloom and post-bloom period is a critical for disease control in grapes, as the young clusters are highly susceptible to diseases, including black rot, downy mildew, powdery mildew, and Phomopsis. The risk is especially great if we have a lot of rain and moderate to warm temperatures during this time. Cool wet weather during bloom can also allow Botrytis to get a foothold in the clusters of susceptible varieties by promoting growth on senescing flower parts.

The main aim for fungicide sprays at this time is to protect the clusters from infection by these pathogens while simultaneously protecting the foliage as well. Some infections that occur during this period may remain dormant (invisible) until the berries are close to veraison (black rot) or ripen (Phomopsis, Botrytis). As the berries mature, they become naturally resistant to new black rot, downy mildew, and powdery mildew infections and the need for protection diminishes. This happens quite rapidly (2-3 weeks after bloom) for downy mildew, 3-4 weeks after bloom for powdery mildew and 4-5 weeks after bloom for black rot. Some wine grape varieties remain susceptible to black rot a couple of weeks longer than Concord grapes.

However, be aware that the cluster stem (rachis) and especially the berry stems can remain susceptible longer than the berries in most cases. The only disease to which berries remain susceptible throughout their development is Phomopsis, but the risk of infection diminishes after bunch closing because spore release drops off then. Botrytis is more of a risk late in the season as the clusters become more susceptible after veraison, especially in tight-clustered varieties. In general, aim to protect the clusters from the major diseases from immediate pre-bloom until 4-5 weeks after bloom. If cluster development is variable, make sure that the

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**Black rot**

Temperatures in the high 70’s and low 80’s are perfect for black rot. At these temperatures, only 6-7 hours of wetness are needed for infection. Black rot is a tricky disease in that infections can remain latent (dormant) for a long period of time, so you won’t know that you have the disease until is it too late to do anything about it. Infections can take place anytime from bloom onwards, but only become apparent at or shortly before veraison. Grape berries are highly susceptible to black rot infection for the first 2-3 weeks after bloom. Then they become progressively less susceptible as they develop, finally becoming highly resistant about 4-8 weeks after bloom depending on the variety and year. In general, Concord berries become resistant to infection about 4-5 weeks after bloom, while some V. vinifera cultivars don’t become fully resistant until 8 weeks after bloom. Thus, the period from immediate pre-bloom through early fruit development is crucial to protect grapes against black rot infection.
Black rot continued:
In five years of trials in New York, good black rot control was achieved with one immediate pre-bloom and 1 to 2 post-bloom fungicide sprays. The second post-bloom application is strongly advised if black rot has been a problem in the vineyard the previous year, and should be considered prudent if wet weather is anticipated. During three years of fungicide trials in a ‘Concord’ vineyard in Fennville, MI, just two post-bloom applications of SI fungicides have provided very good control under high black rot pressure. An immediate pre-bloom application is advised only if black rot was severe in the vineyard in question in previous years.

Sterol-inhibitor fungicides (e.g., Rally and Elite) continue to provide outstanding control of black rot, and provide several days of post-infection activity. When using SI fungicides on a post-infection schedule, use the highest label rates, because post-infection activity is strongly rate-dependent, particularly when extended “kickback” activity is required. The strobilurin fungicides (Abound, Flint, Sovran, Pristine) are excellent protectants but provide only limited post-infection activity (probably <24 h). Flint and Pristine should not be used on Concord grapes because of potential phytotoxicity.

Phomopsis
Cane and leaf lesions have been showing up in vineyards. Extended rainy periods are conducive to infection, with each rainfall event leading to spore dispersal and also leading to infection if the tissue remain wet for a sufficient amount of time. The optimum temperature for infection is 59-68ºF, at which time about 6-10 hours of wetness are needed for infection. The longer the tissue stays wet, the more severe the symptoms will be. Since rachis and clusters are now fully exposed, we should be concerned with preventing Phomopsis infection of the rachis and fruit, especially in mechanically pruned vineyards and vineyards with a history of the disease. Rachis infections are most closely correlated with yield loss.

If at this time you find a lot of lesions on the leaves and canes, infection pressure will be high for the fruit also. Best fungicide options for control of Phomopsis during and after bloom will be Abound, Sovran or Pristine (do not use Pristine on Concord grapes). Phosphorous acid fungicides such as ProPhyt and Phostrol are also good and cost-effective alternative. These are systemic and will most likely provide some kick-back activity. In trials done in Michigan, ProPhyt provided very good control of Phomopsis when sprayed on a 14-day schedule. Tighten the schedule and increase the rate if disease pressure is high. Ziram is a moderate to good protectant against Phomopsis and can be a tank-mix partner with any of the phosphorous acid fungicides. EBDC fungicides are good protectants but cannot be applied after bloom has started in grapes grown for the National Grape Cooperative. EBDC’s have a 66-day pre-harvest interval.

Powdery mildew
Powdery mildew ascospore discharge is initiated in the spring if 0.10 inch or rain occurs at an average temperature of 50ºF or more. This results in thorough wetting of the bark where the cleistothecia have overwintered. When the cleistothecia are sufficiently wetted, infectious ascospores are discharged within 4 to 8 hours and are carried by wind to susceptible plant tissues. They can infect any green surface on the developing vine and do not need water for infection. The fungus then grows on the plant surface and produces a second type of spore (conidia) which are windborne and cause secondary infections. Under optimal conditions, the disease can spread rapidly, as the time from infection to production of conidia can be as short as 7 days. Although infections can occur at temperatures from 59 to 90ºF, temperatures between 68 and 77ºF are optimal for disease development. Temperatures above 95ºF inhibit spore germination, and the fungus may be killed at temperatures above 104ºF.

Berry age has a marked effect on susceptibility to powdery mildew. Researchers in New York showed that when clusters of Chardonnay, Riesling, Gewürztraminer, and Pinot noir were inoculated from pre-bloom to 6 weeks post-bloom, only fruit inoculated within 2 weeks of bloom developed severe powdery mildew. Berries became substantially resistant to infection by 3 to 4 weeks after bloom, resulting in diffuse, non-sporulating colonies on berries, and were virtually immune at 6-8 weeks after bloom. Also, rachises of Chardonnay and Riesling fruit clusters developed severe powdery mildew when inoculated at bloom, whereas rachises inoculated 31 days after bloom developed only trace levels of powdery mildew. Therefore, early sprays (from immediate pre-bloom until 3-4 weeks after bloom) are critical for preventing powdery mildew on the clusters. This usually
Powdery mildew continued:
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 (Rally, Elite, Vintage, etc.) and the strobilurin fungicides (Pristine, Sovran, Abound and Flint). Luckily, we do not have any reports of fungicide resistance to strobilurins in the powdery mildew fungus in Michigan, but in some vineyards where sterol inhibitors have been heavily used for many years, they appear to be less effective than they used to be. New fungicide options that provide excellent control of powdery mildew are Quintec and Endura. Therefore it would be best to not entirely rely on SIs during the most critical period for fruit infection (immediate pre-bloom until 3 weeks after bloom) but alternate and/or tank mix with other effective fungicides.

Downy mildew
Downy mildew primary infections start if rains occur (at least 0.4 inches) and temperatures are above 50°F over a 24-hour period. Check the recent weather conditions at your location on the Michigan Automated Weather Network website. It takes 7-12 days for the lesions to form after infection has taken place, so keep an eye out for downy mildew. Early in the season, downy mildew lesions may be confused with low-concentration Gramoxone and possibly Chateau herbicide injury, which also cause yellow spots on leaves. However, if no herbicide was used and no herbicide spots are present on lower leaves, the spots may be downy mildew. Look for white sporulation on the underside of the leaf.

A spray for downy mildew at this time is recommended for susceptible varieties, especially in vineyards with a history of disease. Severe downy mildew infection can result in premature defoliation of the vine. Ridomil Gold MZ and Ridomil Gold Copper have excellent curative and protectant activity against downy mildew. Under moderate infection pressure, they will provide 3-4 weeks of protection. Of the strobilurins, Pristine, Abound, and Sovran are good choices. Other effective fungicides are mancozeb, ziram, and fixed coppers. ProPhyt and Phostrol are also good alternatives: they provide excellent curative action and about 7-10 days of protective activity. Under high disease pressure or when spraying after an infection period, use higher rates.
This report is a summary of weekly scouting from winegrape and juicegrape vineyards in southwest Michigan. It should be used only as a general guide, because pests vary greatly in their abundance from site to site. Scouting your own vineyards is the best way to know whether pest problems are developing in your farm.

For more information on this project, contact Steve at (517) 242 1282
More information on Vineyard IPM is available online at:  www.grapes.msu.edu
All photos: Steven Van Timmeren
PEST REPORT
Grape berry moth trap catches are beginning to increase in both Leelanau and Old Mission Peninsula traps. Potato leafhopper are also being spotted in higher numbers, with all scouted sites averaging 5 leafhoppers per trap. Keep an eye out for grape plume moth larvae (see pictures below) which produce webbing and feed on foliage. We first spotted this secondary pest last week and have continued to spot more this week. Two-spotted spider mites have also been spotted on the underside of leaves.

WEATHER REPORT
We are finally seeing some warm temperatures in the region. We have had temperatures in the 70’s since Thursday, June 11. As of June 19th, we are still behind our average degree day accumulation (589 GDD base 50) with 435 GDD base 50 at the NW MI Horticultural Research Station.

For more up-to-date weather data follow the links to your nearest weather station or visit www.enviroweather.msu.edu.

Sights in Northwest Michigan Vineyards This Week.

Grape plume moth larvae in leaf  Grape berry moth in traps  Indistinguishable Lepidopteron feeding

GRAPE IPM UPDATES FOR 2009
Don't forget the 'First Friday' IPM Grape Updates! Each meeting will include pest and disease information as in previous years, but each session will also focus on an area of interest to our grape growers. All sessions will take place from 3:00-5:00pm and are often followed by conversation over wine and cheese. Our next session at Mawby's, will feature Dr. Rufus Isaacs from the MSU Department Entomology discussing pest management strategies for grape growers. Call Erin at (231)946-1510 with any questions. Hope to see you there!

July 10: Larry Mawby's vineyard, S. Elm Valley Rd. - Dr. Rufus Isaacs will talk about insect pests of grape.

August 7: Location to be announced – Paul Jenkin (MSU Small Fruit Coordinator) will discuss winegrape sustainability.
Current Growth Stages:

5/31  6/6  6/13  6/19
247  277  308  387
188  208  237  312
268  301  339  435
237  271  303  387

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All photos: Steven Van Timmeren and Erin Lizotte

Growing Degree Days (Base 50)
Starting March 1:

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Click here for more Information on GDDs