News you can use

Disease management
Keep monitoring for foliar and fruit diseases. Continue checking susceptible varieties against downy and powdery mildew.

Don't forget to bring disease samples (including virus symptoms to the Viticulture Field Day in Benton Harbor on July 29 for free disease diagnosis. Keep samples cool if possible. Questions? Call Jerri at 517-355-7539.

Insect management
Scout inside canopies for grape berry moth and leafhoppers. Protect clusters from berry moth in high pressure sites.

Viticulture Field Day
The annual Viticulture Field Day is next Thursday, July 29th. See the June 25 Newsletter for program details. Registration form is attached to the back of this edition.

GROWING DEGREE DAYS

<table>
<thead>
<tr>
<th>Location</th>
<th>Base 50 from April 1</th>
<th>2010</th>
<th>2009</th>
<th>5-yr Avg*</th>
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<tr>
<td>Lawton</td>
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<td>forecast</td>
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*5-yr Avg = 2005 to 2009
See enviroweather.msu.edu for more information.
Conditions have been hot, but the humidity has dropped comparatively providing some relief to work crews. Daytime temperatures have been in the 70’s to 80’s. We remain two to three weeks ahead of last season in terms of degree day accumulations. Rainfall has been very isolated up north with the NW Station receiving just less than 1/10” on 15 July and barely enough to wet the ground 18 July.

We continue to monitor for grape berry moth (GBM) activity; although there were no adult moths trapped this week there was larval webbing spotted in clusters again. According to the GBM model, as of 19 July we have accumulated 1139 DD47 at the NW Research Station based on a biofix of 26 May (wild grape bloom). According to the GBM model, egg laying began around 7 July, growers targeting this pest with broad spectrum insecticides are likely in, or slightly passed the ideal window for treatment (200 DDD after egg laying beings, or 1010 after biofix). There are a number of effective berry moth materials, refer to the E-154 Fruit Management Guide and the June 25 Newsletter for more information.

Potato leafhopper adults continue to be trapped at moderate levels, but no nymph or adult activity was observed on leaves this week. Forest tent caterpillar moths are still being seen around the region, including in vineyards where many formed cocoons and completed pupation. The adult moths are stout and buff/tan colored with two parallel stripes across their wings. These adult moths are not a pest of winegrape and growers should not be concerned, even when observed in high numbers.

The earwig population remains intense in area vines. Earwigs are not considered a pest of grape, but do pose a concern when populations are present in the clusters at harvest. Luckily we have a while before harvest. Cicadas are out in force and can be heard calling in area vineyards, grasshopper populations also appear to be on the rise once more.

-E.L.

GRape & Wine REGIONAL SCOUTING REPORTS

Fig 1. Gewurt at NWMHRS on Leelanau Peninsula, July 20; Photo: E. Lizotte.

Fig 2. Pinot Noir at NWMHRS on Leelanau Peninsula, July 20; Photo: E. Lizotte.

Fig 3. Riesling at NWMHRS on Leelanau Peninsula, July 20; Photo: E. Lizotte.
**SOUTHWEST**

*Steve Van Timmeren, Research Technician*
*Trevor Nichols Research Complex*

**Grape Berry Moth.** There was a slight increase in the number of adult *grape berry moth* caught in traps this week and, more importantly, an increase in the number of infested clusters found (Fig. 4) at the two sites with the highest GBM pressure. At one of those sites, Van Buren Concord, clusters at the border could be found with 10-20 GBM eggs each. About half of the eggs present on the clusters were fresh while the other half had already hatched. All of this information (traps, infestations, eggs) indicates that we are right in the middle of the second generation. If you do have grapes that you’re planning on harvesting it’s especially important that you keep them protected during this crucial time period. However, before you rush out and apply an insecticide spray you should remember that the next generation of egg-laying (1620 GDD) is predicted to start the middle of next week in southwest Michigan. So, the early-emerging second generation GBM are going to be coming out as adults and laying the third generation of eggs. What this means is that you need to plan your GBM management strategy for the long-term since egg-laying and emergence is going to continue pretty steady for quite a while yet.

**Japanese Beetles.** *Japanese beetles* remain low at the two Concord sites (Fig. 5) and the Vignoles site. Populations at the Allegan Chardonnay site increased rapidly this past week, enough that an insecticide spray was applied earlier this week. As far as adult emergence goes, we probably hit the peak last week and are on the downswing as we approach August. However, the adults that are currently out are highly mobile so you need to continue to be vigilant in your wine grapes and young vines.

**Black Rot.** *Black rot* berry infections remained at the same levels they were at last week with more of the infected berries becoming mummies. There were more of the crater-like infections (indicating berry resistance) visible on berries than there were last week (Fig. 6). At this point the berries should be fully resistant to new infections.

**Powdery Mildew.** We haven’t seen any increase in *powdery mildew* at any of the sites scouted for this

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**Growing degree days (base 47) from biofix date**

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<th>Site</th>
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<td>May 26</td>
<td>937</td>
<td>1134</td>
<td>1340</td>
<td>1563</td>
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</tbody>
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*Fig 4.* Premature discoloration of GBM-infested Concord berry; *Photo: S. Van Timmeren.*

*Fig 5.* Japanese beetles on Concord; *Photo: S. Van Timmeren.*

*Fig 6.* Older black rot infections (mummies) and newer infections (blackened craters) on Concord; *Photo: S. Van Timmeren.*
report. So far only a tiny amount is showing up on berries at the Berrien Concord site. As with black rot, the berries should be resistant to new infections at this point.

**Downy Mildew.** Downy mildew continues to show up occasionally at the two Concord sites, but infections haven’t increased since last week. However, some new infections have shown up in the past week on young Mars vines in Grand Rapids. This serves as a reminder to keep a very close eye on your susceptible varieties, especially if you aren’t applying as many fungicides this year.

**Botrytis.** We continue to find a small amount of Botrytis on berries at the Allegan Chardonnay site. All of the infections we found last week were dry infections on shriveled up berries and/or old flower caps. This week we began to see some of these infections spread to surrounding berries, resulting in newer, wet infections (Fig. 7). While overall levels of infection are still quite low, this serves as a reminder that this could be a high pressure year for Botrytis. As we approach veraison in some varieties, you should watch for new infections closely.

**Growth Stages.** All clusters are now at the green fruit stage.

-S.V.
Don’t let downy mildew get you down

Downy mildew has gotten a relatively early start this year with first sightings from mid to late June, depending on location and cultivar. Downy mildew is caused by the fungal-like organism *Plasmopara viticola* and can seriously damage leaves and clusters of susceptible cultivars. Leaf infections may lead to premature defoliation, which can reduce winter hardiness and sugar accumulation in the fruit in severe cases. Cluster infections usually translate into direct losses, as the infected cluster stems and berries will become necrotic and fail to develop.

This is often the case with *Chancellor*, which is highly susceptible to downy mildew. First symptoms on the leaves may be yellow or light-green spots that may have a greasy appearance (oil spots). On older leaves, lesions are smaller and more angular as they are delimited by leaf veins. White sporulation usually develops on the underside of the leaf after warm nights with high relative humidity. Infected clusters and tendrils may also be covered with a fluffy white growth.

**Biology of the pathogen.** The pathogen overwinters as thick-walled spores (oospores) in fallen infected leaves on the ground. Oospore germination is favored by moist soils and temperatures over 50°F, and typically starts several weeks before bloom in this region. Oospores develop a second spore type, sporangia, which are splashed by rain or carried by wind to young leaf and shoot tissues. The sporangia release zoospores (swimming spores) that need a film of water (rain or dew) to infect plant tissues. Infection by zoospores is relatively rapid and a wetness duration of 2-3 hours is often sufficient. Zoospores infect the plant exclusively through the stomates (breathing pores on the leaf), which are mostly located on the lower leaf surface. Young leaves and berries are particularly susceptible, but become resistant to infection as they age.

Lesions appear within 5-17 days after infection. The fungus then proceeds to sporulate on infected tissues under warm, humid conditions (>98% humidity and >55°F) at night. The optimal temperature for sporulation is 65-72°F. On leaves, sporulation typically occurs on the underside of the leaf or rarely along veins on the upper leaf surface (this in contrast to powdery mildew, where sporulation mostly occurs on the upper surface). Lesions typically sporulate three times before they die and turn necrotic.

Rain is the principal factor driving epidemics. Temperature plays a less important role by retarding or accelerating the development of the disease. The most serious epidemics occur when a wet winter is followed by a wet spring and a warm summer with cloudy days and intermittent rainstorms every 8-15 days. Since the generation time of the fungus can be as short as 5 days under optimal conditions, this can lead to “explosive” disease development. Once the weather turns warm and dry, the downy mildew fungus goes “on vacation” and may not be very active until favorable conditions return in late summer and early fall.

**Disease monitoring.** Since downy mildew can develop explosively under conducive conditions, frequent disease monitoring is important even when fungicide sprays have been applied. Scout several rows in various places in a vineyard. Visually scan leaves and clusters, and also look for symptoms on tendrils and shoots. Early in the season, lesions may be most visible on leaves and shoots close to the ground, but later on, they may appear higher in the canopy. If you see yellow lesions, turn the leaf over to look for white sporulation on the lower leaf surface. If no sporulation is present, it may be that the lesions are still young and conditions have not been right yet for sporulation. Occasionally, low-level paraquat herbicide injury may resemble downy mildew lesions but these spots do not show sporulation. Also, in the case of herbicide injury you’ll see typical necrotic lesions associated with paraquat injury on the same or nearby leaves. If you are not sure of the cause, remove...
symptomatic leaves and place them in a plastic bag with a moist paper towel at room temperature (68-75°F) overnight. If it is downy mildew, white sporulation should become visible on the underside of the leaf within 1 or 2 days.

**Control options.** Fungicide sprays for downy mildew are recommended for susceptible varieties, especially in vineyards where the disease has been found. Keeping the disease from defoliating vines may also be important after harvest to allow the vines to build up maximum reserves for the winter. If downy mildew has been found in your vineyard, don’t allow the disease to develop to epidemic proportions before taking action. Listed below are some characteristics of fungicides that may help you decide which ones are most appropriate. At this point, it may be too late to use fungicides with extended pre-harvest intervals.

- **Abound** (azoxystrobin), **Pristine** (pyraclostrobin + boscalid), **Sovran** (kresoxim-methyl) (strobilurins; systemic or locally systemic; 14-day PHI). Very good to excellent preventive activity (~14 days), limited post-infection activity so would be better applied on a preventative basis. Strobilurins will also reduce sporulation in existing lesions, thus slowing the epidemic. Abound is phytotoxic to apples, Pristine is phytotoxic to ‘Concord’ and some other Labrusca-type grapes; Sovran is phytotoxic to some sweet cherry varieties.

- **Aliette,** **ProPhyt,** **Phostrol,** **Agri-Fos** (salts of phosphorous acid) (phosphites; highly systemic; 0-day PHI; Aliette: 15-day PHI), good to excellent preventive and curative activity. Systemic and highly mobile within the plant. They have at least 4 days of curative activity and 7-10 days of protective activity. These products do not eradicate active lesions, but can reduce spore production. Use higher rate if applying after infection period. Research in New York has shown good to excellent disease control on a 14-day schedule, except on highly susceptible varieties, which may require more frequent sprays. There is a risk of phytotoxicity when applied to plants under stress or at high temperatures. Do not tank-mix with copper products, Quintec, surfactants or foliar fertilizers. There are many other generic versions available – compare by looking at the phosphorous acid equivalent).

- **Captan** (captan) (phthalimides; protectant; 0-day PHI): good preventive activity; not allowed on juice grapes by some processors.

- **Copper** (copper) (inorganics; protectant; 0-day PHI; 24-day REI): good preventive activity, some grape varieties are sensitive to copper, especially under cool, slow-drying conditions.

Specific formulations can be used in organic vineyards.

- **Dithane, Penncrozeb, Manzate** (mancozeb) (EBDC’s; protectant; 66-day PHI): good preventive activity; however, the long PHI precludes their use late in the season. Also, EBDCs are not allowed on juice grapes after bloom by some processors.

- **Forum** (dimethomorph) (carboxylic acid amines; systemic, 28-day PHI): new fungicide for control of downy mildew in grapes. Use Forum as a preventive application before infection occurs. The minimum application interval is 7 days. Performance may be improved by using Forum as a tank mix with another fungicide. The addition of a spreading/penetrating adjuvant is prohibited. Do not make more than 5 applications per year, and no more than one application before switching to a fungicide with a different mode of action. Forum has not been evaluated for disease control in Michigan but is used widely in Europe for control of downy mildew.

- **Gavel** (zoxamide + mancozeb) (benzamides and EBDC’s; protectant; 66-day PHI): broad-spectrum protectant fungicide. Addition of an agricultural surfactant will improve fungicide performance. Do not make more than 8 applications per acre per season. Consider Gavel and all other EBDC fungicides in observing the maximum seasonal use rate recommendations for mancozeb. Gavel was effective against downy mildew in grape trials in Michigan but its use is limited later in the season because of the 66-day pre-harvest interval.

- **Presidio** (fluopicolide) (acylpicolides; systemic, 21-day PHI) is a new systemic fungicide which very good protective, curative, eradicative, and antisporulant properties. Presidio is compatible with many fungicides and insecticides and is rainfast in 2 hours. No more than two sequential applications are allowed. A tankmix with another fungicide with a different mode of action must be used with Presidio for fungicide resistance management.

- **Revus** (mandipropamid) (carboxylic acid amines; systemic, 14-day PHI) is a fungicide which is active against diseases caused by downy mildew. Revus Top is a pre-mix of mandipropamid and difenoconazole, a powdery mildew fungicide. It has preventative and limited curative properties. A maximum of four sprays and two sequential sprays is allowed. The addition of a spreading/penetrating type adjuvant such as a non-ionic based surfactant...
or crop oil concentrate is recommended. Do not apply Revus Top to Concord or Noiret grapes due to phytotoxicity concerns.

- **Ranman** (cyazofamid) (Quinone outside inhibitors; locally systemic, 30-day PHI) is a new fungicide for control of downy mildew in grapes. Ranman has limited systemic activity, so it should be applied in a preventive mode. Apply on a 10-14 day schedule when conditions are favorable for disease development.

- **Ridomil Gold Cu** (mefenoxam + copper) (phenylamides and inorganics; systemic + protectant; 42-day PHI), **Ridomil Gold MZ** (mefenoxam + mancozeb) (phenylamides and EBDCs; systemic + protectant; 66-day PHI). Ridomil Gold has excellent preventive and curative activity (i.e., it will stop development of lesions before and after symptoms start to show). It also stops or reduces sporulation in developing and existing lesions. It has up to 21 days of protective activity. However, the pre-harvest interval may preclude their use at this time of the season. Consider your earliest estimated harvest date to decide if these are still an option.

- **Serenade** (*Bacillus subtilis*: biocontrol agent; protectant; 0-day PHI): moderate to good preventive activity, especially when applied with Nu-Film-P or similar spreader-sticker. Good coverage is important for control. Serenade has no maximum seasonal application rate. Organic formulation can be used in organic vineyards.

- **Tanos** (famoxadone and cymoxanil) (strobilurins and cyanoacetamide-oximes; systemic, 30-day PHI): has curative and locally systemic properties against downy mildews. Tanos rapidly penetrates into plant tissues and is rainfast within 1 hour of application. It must be tank-mixed with a contact fungicide labeled for that crop (e.g., mancozeb, captan or copper). A maximum of 9 applications of Tanos including other group 11 (strobilurin).

- **Ziram** (ziram) (dithiocarbamates; protectant; 21-day PHI): good preventive activity. Apply on a preventive basis. Susceptible to wash-off by rain.
Japanese Beetle Biocontrol Field Day  
July 28  
10AM-12PM  
MSU Tollgate Research & Extension Farm, Novi

2010 NW Wine Grape IPM Updates  
More information: Erin Lizotte, 231-946-1510.  
August 6  
3-5PM  
Ligon Farm, Traverse City (OMP)  
Speaker: Paolo Sabbatini

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 SW Juice Grape Grower Meetings  
More information: Mark Longstroth  
269-330-2790 or Diane Brown-Rytlewski  
269-944-4126 X4012.  
August 17  
1:30-3:30PM  
Lemon Creek Winery, Berrien Springs  
Speakers: Annemiek Schilder & Rufus Isaacs

2010 SW Wine Grape grower meetings  
More information: Diane Brown-Rytlewski  
269-944-4126 X4012.  
August 4  
12PM  
Karma Vista Winery, Coloma

2010 SW Viticulture Field Day  
July 29  
9AM-5PM  
SWMREC, Benton Harbor  
Please note this event is on a Thursday this year.

2010 Pre-harvest Enology Education Workshops  
Keynote speaker: Dr. Nichola Hall of Scott Labs.  
Online registration here.  
August 16 - SW Michigan  
9AM-4PM  
Fenn Valley Vineyards, Fennville

August 18 - NW Michigan  
9AM-4PM  
L. Mawby, Suttons Bay

2011 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  
More information: Mark Longstroth,  
269-330-2790.  
February 9-10 (Tentative)  
Lake Michigan College, Benton Harbor
21st Annual MSU Viticulture Field Day

Thursday, July 29, 2010

Registration Form

Names(s) to be used for name tags:
______________________________________________________________________________________________
______________________________________________________________________________________________
______________________________________________________________________________________________
__________________

Contact address:
______________________________________________________________________________________________

__________ Phone: ____________________________________

Regular registration after July 16: _______ people x $35/person = $ _____________________

Make checks payable to MICHIGAN STATE UNIVERSITY and mail registrations to:
Viticulture Field Day at SWMREC
1791 Hillandale Road
Benton Harbor, MI 49022
269-944-1477 x 201
(return this portion with your reservation check)

Directions to SWMREC:

Travel on I-94 to Exit 30, which is Napier Avenue. Turn east on Napier Avenue and go 2 1/2 miles to Hillandale Road. Turn south (right) and travel to the entrance of SWMREC (about one-quarter mile on the east (left) side of Hillandale Road).