

**Vineyard IPM Scouting Report for week of 3 June 2013**  
**UW-Extension Door County and Peninsular Agricultural Research Station****Phylloxera on Frontenac and Marquette**

This week I had a grower from a Northeastern county send me some pictures of galls on leaves (photo at right). The galls were found on leaves of Frontenac, Frontenac gris, and Marquette. Last week, Brian Emerson from West Madison also had sent some pictures of galls found on leaves at the wine grape variety trial located in West Madison. Brian identified the galls as phylloxera.



The phylloxera galls appeared when shoot growth was only 4 to 6 inches and only 1 or 2 leaves had fully expanded. Within these galls is a female and maturing eggs that will hatch into crawlers. The crawlers will leave the gall and continue the cycle by galling young expanding leaves near the shoot tip. The crawlers will not attack fully expanded mature leaves. With phylloxera present at early shoot growth (4 to 6 inch shoots) there will likely only be one or two fully expanded leaves that are without galls unless the plants are treated with an insecticide. Phylloxera attack this early in the season will likely compromise growth and development. Often we like to see 15 to 16 healthy leaves per shoot to supply the developing fruit clusters.

Remember that grape varieties have different sensitivities to phylloxera. Frontenac, Frontenac gris, and Frontenac blanc are all highly susceptible to phylloxera leaf galls. Marquette seems to be moderately susceptible. Take some time and scout your vineyard.

Should you apply an insecticide and if so when should you apply it? You have three insecticides for managing phylloxera, Assail, Danitol, and Movento. Danitol is a restricted use pesticide and so you will need to be a certified applicator in order to purchase and apply this product. Your other options are Assail and Movento. Assail is typically applied pre-bloom and is effective against crawlers and have less efficacy on established galls. Movento is a systemic insecticide that moves throughout the vine and has a long residual. Unlike Assail, Movento will be active against adults within the galls. Since Movento is an expansive product and residual activity is dependent on getting the material into the plant, if you are considering applying Movento realize that having more foliage to spray will result in more Movento entering the vine. In other words, consider having 18 to 24" of shoot growth before applying Movento.

## A Quick Look at Fungicide Resistance Management

As the growing season gets underway, for many growers their thoughts focus on a disease management program that protects the developing crop. Often I write about the critical period of disease management being from immediate pre-bloom to 4 to 5 weeks post bloom. It is during this critical period that fungicides from two fungicide classes are routinely applied. The two classes of fungicides are the strobilurins and the sterol-inhibiting fungicides. Fungicides in these two classes provide good protection to a broad spectrum of grape fungal diseases. However you should be aware that both powdery and downy mildew populations have been identified that are resistant to fungicides in the strobilurin and sterol-inhibiting fungicide classes. If you use fungicides from these two classes, take some precautions to avoid or delay the development of fungicide resistance. See the table below for a listing of strobilurin and sterol inhibiting fungicides. Try to avoid applying two sequential applications of the same product. You want to rotate fungicides that have different modes of action. Many of the labels of the strobilurin and sterol inhibitors limit the number of applications in a growing season. For example, the label for Flint limits the number of applications to 6 and suggests that no more than two sequential applications. So as we enter this critical period where you have to protect your crop using fungicides, have a plan which provides your crop protection to fungal diseases but also reduces the potential for selecting for fungicide resistant pathogens.

Fungicides in the strobilurin and sterol inhibitor classes that are prone to selecting for fungicide resistant pathogens.

<b>Fungicide class</b>	<b>Trade name</b>	<b>Common names</b>
Strobilurin (Group 11)	Abound	azoxystrobin
	Flint	trifloxystrobin
	Pristine	pyraclostrobin (+ boscalid)
	Quadris Top	azoxystrobin (+ difenoconazole)
	Sovran	Kresoxim-methyl
Sterol inhibitors (Group 3)	Elite	tebuconazole
	Luna Experience	tebuconazole (+ fluopyram)
	Inspire Super	difenoconazole (+ cyprodinil)
	Procure	triflumizole
	Quadris Top	difenoconazole (+ azoxystrobin)
	Rally (Nova)	myclobutanil
	Revus Top	difenoconazole (+ mandipromamid)
	Rubigan	fenarimol

## Practices that can help in delaying or avoiding resistance development

- Use dormant pruning, shoot thinning, or latter in the season leaf pulling to provide greater light and air penetration into the canopy resulting in reducing drying time of leaf/berry moisture. For most of the major grape fungal pathogens they need free moisture for infection. Although powdery mildew does not need free moisture for infection, high relative humidity results in a faster rate of infection. Therefore, powdery mildew infections often get started in shaded canopy areas where the shaded micro-environments keep humidity levels elevated compared to leaves exposed to sunlight.
- Do not apply two sequential applications of fungicides in the same chemical class that are considered high risk for selecting for fungicide resistance. In other words, do not apply a strobilurin followed by a strobilurin fungicide (Abound, Flint, Pristine, Quadris, Quadris Top, Sovran).
- Use fungicides that have multiple modes of action (captan, mancozeb, copper, sulfur) tank mixed with fungicides that have a single target site. Strobilurins and sterol inhibiting fungicides have a single target site.

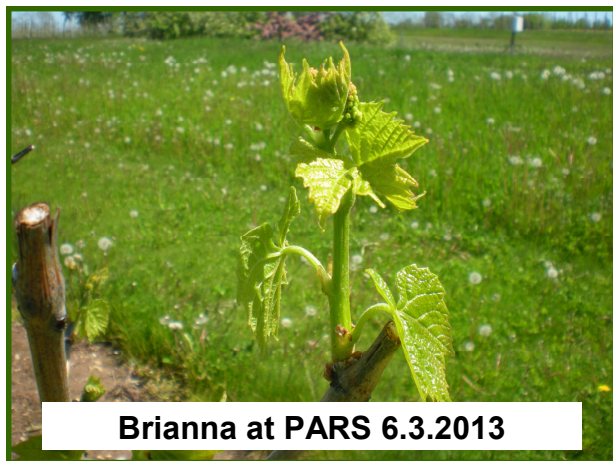
You need to be proactive about fungicide stewardship and help preserve the fungicides that are currently available. Both the strobilurins and sterol inhibiting fungicides are excellent at protecting grapes from a broad spectrum of diseases. Limit the use of these fungicides so as to preserve their utility into the future.

Just to demonstrate that there is a lot of variability in the bud break in wine grape varieties at PARS





Development of wine grapes in the grape variety trials at the Peninsular Agricultural Research Station (PARS) Sturgeon Bay, WI and West Madison Agricultural Research Station (WMARS), Madison, WI



**Brianna at PARS 6.3.2013**



**Brianna at WMARS 6.3.2013**



**Foch at PARS 6.3.2013**



**Foch at WMARS 6.3.2013**



**Frontenac at PARS 6.3.2013**

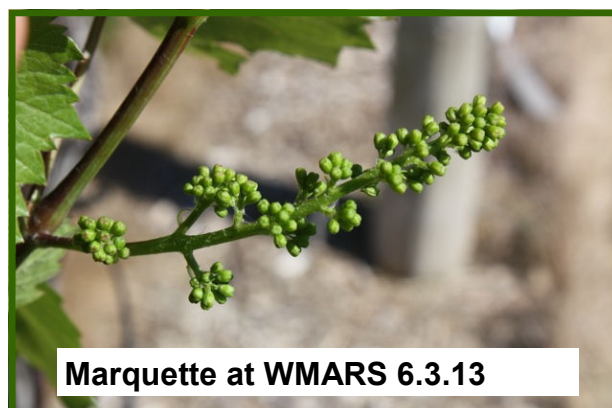
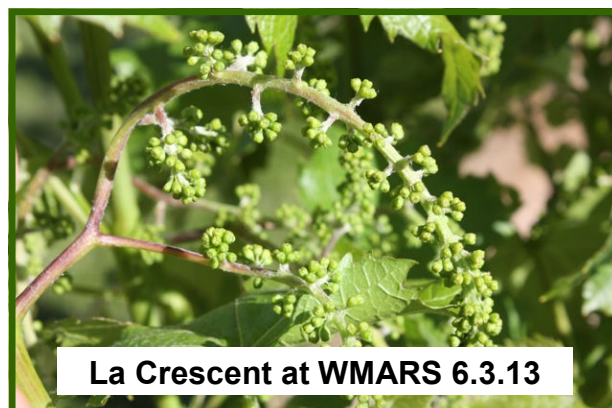


**Frontenac at WMARS 6.3.2013**

2013



Development of wine grapes in the grape variety trials at the Peninsular Agricultural Research Station (PARS) Sturgeon Bay, WI and West Madison Agricultural Research Station (WMARS), Madison, WI



2013

**Degree Day<sup>1</sup> (base 50) Accumulation from April 1 to June 2, 2013 at Peninsular Agricultural Research Station in Sturgeon Bay, WI**

<b>Date</b>	<b>2013</b>	<b>2012</b>	<b>5 Year Average<sup>2</sup></b>
4/1 to 6/2	248	342	321

<sup>1</sup>Modified method.

<sup>2</sup>Average from 2008 to 2012.

**Degree Day<sup>1</sup> (base 50) Accumulation from April 1 to June 2, 2013 at West Madison**

<b>Date</b>	<b>2013</b>	<b>2012</b>	<b>5 Year Average<sup>2</sup></b>
4/1 to 6/2	464	564	540

<sup>1</sup>Modified method.

<sup>2</sup>Average from 2008 to 2012.

**Accumulated degree days<sup>1</sup> (base 50) for the month of March in Sturgeon Bay and Madison, WI.**

<b>Year</b>	<b>Madison WI</b>	<b>Sturgeon Bay WI</b>
GDD (base 50, ceiling 86)		
2013	1 <sup>2</sup>	0
2012	252	106
2011	13	3
2010	72	38
2009	51	12
2008	1	0
2007	90	41
2006	22	7
2005	40	9
2004	49	11

<sup>1</sup>Modified method.

<sup>2</sup>Data from <http://www.doa.state.wi.us/degreedays/>

Please scout your vineyards on a regularly scheduled basis in an effort to manage problem pests. This report contains information on scouting reports from specific locations and may not reflect pest problems in your vineyard. If you would like more information on IPM in grapes, please contact Dean Volenberg at (920)746-2260 or [dean.volenberg@ces.uwex.edu](mailto:dean.volenberg@ces.uwex.edu)