Vineyard IPM Scouting Report for week of **18 June 2012**  
**UW-Extension Door County and Peninsular Agricultural Research Station**  
**Sturgeon Bay, WI**

**Grape Berry Moth and the Michigan State University Predictive Model**

**Dean Volenberg**

The grape berry moth is one of those insect pests in which we are still filling our knowledge gaps in Wisconsin. There may be two or three generations per year in Wisconsin. In comparison, in southern Michigan, grape berry moth typically has three generations per season. The first generation of grape berry moth goes unnoticed by many growers. This observation is likely the result of many growers applying a broad spectrum post-bloom insecticide for the control of phylloxera that also controls grape berry moth. If you are targeting first generation grape berry moth, Rufus Isaacs, Michigan State University, suggests applying an insecticide 10-days post bloom. Reducing the first generation of grape berry moth will result in reduced numbers in the second generation. Left uncontrolled, grape berry moth populations increase with each generation. The latter generations are the most destructive causing yield loss, damaging fruit integrity that may result in secondary disease problems (sour rot), and crop contamination. Management should focus on monitoring for these latter infestations of grape berry moth and applying controls, if appropriate, at the correct time.

The MSU degree day model predicts egg laying of the second and third generations. The model uses the bloom period of wild grapes as the biofix. Biofix is a biological event or indicator that that initiates the beginning of a degree day model. In this case, the biological event is when 50% of the wild grape clusters have 50% open flowers. The growing degree days accumulated after the biofix date predicts the occurrence of egg laying. The GDD are based on a base of 47° F. To calculate GDD at base 47° F, use the following equation.

*Within the white webbing is a small grape berry moth larva. When scouting clusters look for grape berries that have been webbed together as pictured above. Peninsular Agricultural Research Station wild grapes 6.18.2012.*
GDD = \frac{T_{\text{maximum}} + T_{\text{minimum}} - T_{\text{base}}}{2}

As an example, the daily high temperature is 90° F and the daily minimum temperature is 50° F.

\[
GDD = \frac{90 + 50 - 47}{2} = 23
\]

Michigan State University has determined that grape berry moth takes 810 GDD (base 47° F) to complete a generation. Also MSU has determined that egg laying increases at 810 and 1620 GDD after wild grape bloom. These GDD set-points represent the second and third generations of grape berry moth.

In vineyards with a history of grape berry moth, it is important to protect your clusters. You should be scouting clusters, especially in areas that have a history of problems. Typically these problem areas are vineyard borders near wooded areas. Although a number of insecticides are available for grape berry moth control, MSU has shown in a number of trials that Intrepid (12 oz/acre) gives very good control of grape berry moth compared to some broad spectrum insecticides. Additionally, Intrepid helps preserve natural enemies compared to broad spectrum insecticides. If considering using Intrepid in late season, be aware that Intrepid has a 30 day pre-harvest interval.

**Grape berry moth stage, time of appearance, and location\(^1\) (note the table is for only two generations).**

<table>
<thead>
<tr>
<th>GBM Stage</th>
<th>Timing</th>
<th>Where to look</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult (1st flight)</td>
<td>Late May (before bloom) until mid-July</td>
<td>Pheromone traps</td>
</tr>
<tr>
<td>Adult (2nd flight)</td>
<td>Late July until early September</td>
<td>Pheromone traps</td>
</tr>
<tr>
<td>Eggs (1st generation)</td>
<td>Late May to mid-July</td>
<td>Stems, blossom buds, berries; later only on berries</td>
</tr>
<tr>
<td>Eggs (2nd generation)</td>
<td>Late July to early September</td>
<td>Berries</td>
</tr>
<tr>
<td>Larvae (1st generation)</td>
<td>Early June to late July</td>
<td>Stems, blossom buds, or berries; blossoms and berries webbed together; later only on berries</td>
</tr>
<tr>
<td>Larvae (2nd generation)</td>
<td>Early August to late September</td>
<td>Inside of berries</td>
</tr>
<tr>
<td>Pupae (1st generation)</td>
<td>Late June to August</td>
<td>On leaves on the vine</td>
</tr>
<tr>
<td>Pupae (overwintering)</td>
<td>August to late May of following year</td>
<td>On fallen leaves</td>
</tr>
</tbody>
</table>

\(^1\)Adapted from Cornell University Integrated Pest Management Program.
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 6.18.2012
32 to 46 inch shoots
Buckshot berries

Foch at PARS 6.18.2012
24 to 32 inch shoots
Bloom

Frontenac at PARS 6.18.2012
34 to 44 inch shoots
Past bloom

Brianna at WMARS 6.18.2012

Foch at WMARS 6.18.2012

Frontenac at WMARS 6.18.2012
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.

- La Crescent at WMARS 6.18.2012
  32 to 36 inch shoots
  Past bloom

- La Crosse at WMARS 6.18.2012
  24 to 34 inch shoots
  Past bloom

- Marquette at WMARS 6.18.2012
  36 to 48 inch shoots
  Past bloom
Development of wine grapes in the grape variety trials at the Peninsular Agricultural Research Station (PARS) Sturgeon Bay, WI.

NY 76 at PARS 6.18.2012
18 to 24 inch shoots
20% Bloom

Vignoles at PARS 6.18.2012
18 to 32 inch shoots
0% Bloom

Petite Pearl at PARS 6.18.2012
Two year old vines
28 to 30 inch shoots
Bloom

Noiret at PARS 6.18.2012
24 to 28 inch shoots
10% Bloom

Leon Millot at PARS 6.18.2012
32 to 36 inch shoots
Past bloom

Wild grapes at PARS 6.18.2012
Pea sized berries
What’s lurking in or near the vineyard this week?

Galls caused by flies or gall midges of the family *Cecidomyiidae* on wild grapes at PARS.
What’s lurking in or near the vineyard this week?

Phomopsis cane lesions on wild grape at PARS on 6.18.2012. The initial infection likely occurred in late May or early June, since symptoms typically take 21 to 30 days to appear after infection. The lesions typically appear on the first 6 internodes of a shoot but can occur anywhere on the shoot.

Grape tumid galls on the leaves and tendrils of wild grapes at PARS on 6.18.2012. The galls contain a larva of a fly *Janetiella brevicauda*. Grape tumid galls seldom cause any economic damage in commercial vineyards.

Grape flea beetles continue their assault both in wild grapes and in the vineyard.
What’s lurking in or near the vineyard this week?

**Eight-spotted Forester** *Alypia octomaculata* (Lepidoptera: Noctuidae). The larva of the eight-spotted forester will eat most all grape foliage except the leaf veins and petioles. The larva when fully grown is 1 to 1.25 inches in length with a distinctive coloration of black, white, orange, and yellow. The adult moth has a body length of 5/8 inch and a wingspan of 1.5 inches. The eight-spotted forester is often present in low numbers and large infestations are not common. Most growers have noticed some defoliation from insects during the month of June and maybe you have seen these moths flying around the vineyard. The picture above is an adult eight-spotted forester on wild grapes at PARS on 6.18.2012.
### Degree Day (base 50) Accumulation from April 1 to June 17, 2012 at Peninsular Agricultural Research Station in Sturgeon Bay, WI

<table>
<thead>
<tr>
<th>Date</th>
<th>2012</th>
<th>2011</th>
<th>5 Year Average$^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/1 to 6/17</td>
<td>587</td>
<td>452</td>
<td>515</td>
</tr>
</tbody>
</table>

$^1$Modified method.  
$^2$Average from 2007 to 2011.

### Degree Day (base 50) Accumulation from April 1 to June 17, 2012 at West Madison

<table>
<thead>
<tr>
<th>Date</th>
<th>2012</th>
<th>2011</th>
<th>5 Year Average$^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/1 to 6/17</td>
<td>852</td>
<td>789</td>
<td>752</td>
</tr>
</tbody>
</table>

$^1$Modified method.  
$^2$Average from 2007 to 2011.

### Accumulated degree days (base 50) for the month of March in Sturgeon Bay and Madison, WI.

<table>
<thead>
<tr>
<th>Year</th>
<th>Madison WI</th>
<th>Sturgeon Bay WI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GDD (base 50, ceiling 86)</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>252$^2$</td>
<td>106</td>
</tr>
<tr>
<td>2011</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>2010</td>
<td>72</td>
<td>38</td>
</tr>
<tr>
<td>2009</td>
<td>51</td>
<td>12</td>
</tr>
<tr>
<td>2008</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2007</td>
<td>90</td>
<td>41</td>
</tr>
<tr>
<td>2006</td>
<td>22</td>
<td>7</td>
</tr>
<tr>
<td>2005</td>
<td>40</td>
<td>9</td>
</tr>
<tr>
<td>2004</td>
<td>49</td>
<td>11</td>
</tr>
<tr>
<td>2003</td>
<td>49</td>
<td>15</td>
</tr>
</tbody>
</table>

$^1$Modified method.  
$^2$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.