Foliar Phylloxera

Susceptible grape varietals should be protected from foliar phylloxera. When the first crawlers of the second generation appear a protective spray should be applied. Typically, if foliar phylloxera was a problem last season it will be a problem this season.

Monitoring and scouting for foliar phylloxera

The appearance of galls caused by foliar phylloxera may result in you wanting to take immediate action to limit further leaf galling. Before taking action, take some time to understand the biology of foliar phylloxera in order to maximize your control strategies. The first galls caused by foliar phylloxera are the result of the first generation crawlers hatching from eggs, making the journey to the first to third expanding terminal leaves of a shoot and initiating the gall. These first galls are limited in numbers. Inside of these maturing galls a female will produce up to 300 eggs that will result in the second generation of crawlers. This process will be repeated for a number of generations depending on the growing season.

If galls are found on susceptible cultivars then control strategies should be implemented to control succeeding generations of crawlers. The development from egg to crawlers can be monitored by slicing through galls every couple of days to determine when the eggs hatch. Another option is to place double sided tape around a shoot above leaves that are galled. The tape will capture crawlers as they travel along the shoot to emerging leaves. Once second generation crawlers have hatched or crawlers have been found on the double sided sticky tape, an insecticide should be applied.
There are limited insecticide options, but all are effective in controlling foliar phylloxera. Both Assail 30SG and Movento 2SC have systemic activity. However, there are differences in these two insecticides systemic properties. Assail 30SG is locally systemic or translaminar resulting in the insecticide moving into the leaf tissue resulting in a residual activity. Movento 2SC has full systemic activity resulting in the insecticide moving upwards or downwards in the phloem and also moving upwards in the xylem. Danitol 2.4EC is a pyrethroid that will knockdown crawlers but has no systemic activity. If using Danitol 2.4EC it is important to monitor when second generation crawlers are hatching or moving up the shoot since once females become entombed within a gall, Danitol will have limited impact. Both Assail and Movento should also be applied when second generation crawlers are hatching or moving up the shoot. Applying at this time will provide a longer cover period than just applying when first generation galls appear.

Many of the hybrid grapes sourced from *Vitis vinifera* and American *Vitis* species are susceptible to foliar phylloxera. These include: Catawba, Cayuga white, Chambourcin, Norton, Seyval, Vidal, Vidal blanc, Vignoles.

Also be aware that a number of insects can cause galls on grape tissues. A gall that can look similar to foliar phylloxera is the gall caused by the grape tumid gallmaker. Although the galls look different upon close examination, at times our eyes are drawn to color rather than morphological differences. As an example first generation phylloxera galls look similar to grape tumid galls simply based on color.
Closer examination shows that grape tumid galls are smooth. Although at times grape tumid galls can become an economic problem, foliar phylloxera is much bigger problem especially on phylloxera sensitive grape cultivars.

First generation phylloxera galls (A) can look similar to grape tumid galls (B and C) on grape leaves. Although grape tumid galls can be sporadic pests of grapes, seldom do the galls result in economic injury. Grape tumid galls are smooth whereas phylloxera galls appear rough on appearance.
From the Mailbag: What growers are seeing in the vineyard.

The larva on left were from grape plants in the Northwest Region of Missouri. The leaves of the grapes were curled/folded and the larva were found within the curled/folded leaves. The larva is likely Grapevine epimmensis *Psychomorpha epimensis* (Dury) (Lepidoptera: Noctuidae). The Eight spotted forester *Alypia octomaculata* (Lepidoptera: Noctuidae) larvae can appear similar to Grapvine epimensis. Both of these can be sporadic pests of grapes. Photo credit: Tom Fowler, Missouri Extension Horticulture Specialist

Phomopsis lesions on shoot, leaf petiole and leaves. The cool wet weather has resulted in extended wetting periods providing ideal conditions for phomopsis infections. Be sure to keep scouting and keep your vines protected especially as the vines approach pre-bloom.
From the Mailbag: What growers are seeing in the vineyard.

Grape vines and glyphosate (Roundup) are not compatible partners.

**Warning:** Grapevines should have all suckers removed from trunks and the wounds from sucker removal should have adequate time to heal before applying glyphosate.

Read and follow the label: what appears below is taken directly from the Roundup WeatherMax label.

Section 10.0 Tree, Vine and Shrub Crops

Label states: "Use extreme caution to avoid contact of this herbicide solution, spray drift or mist with foliage or green bark of trunk, branches, suckers, fruit or other parts of trees, canes, vines. Avoid applications when recent pruning wounds or other mechanical injury has occurred. Contact of this product with other than matured brown bark can result in serious crop damage or destruction."

Glyphosate applied to vineyard without sucker removal (left and below) resulted in vines experiencing herbicide injury. Not only will glyphosate injure vines but it may result in serious destruction as the label states. There are many alternative herbicides to glyphosate that will not cause serious injury to vines. In this instance most of the weed competition was from grasses, specifically Downy brome and either Fusilade DX 2EC or Poast 1.5EC would have resulted in controlling Downy brome without causing serious vine injury. Both Fusilade and Poast have 50 day PHI.
From the Mailbag: What growers are seeing in the vineyard.

Warning: watch your mixing partners with Captan as some spray solution mixtures may result in vine injury as shown below.

Grapes and Captan 50WP
- Do not apply Captan with or immediately prior or after oil sprays
- Do not use spreaders or adjuvants with Captan
- Do not apply Captan during warm cloudy humid weather
- Do not mix Captan with an EC or WP unless they are compatible and have been shown to not cause injury
Chambourcin 28 inch shoots on May 18, 2015. Gasconade County

Vignoles 28 inch shoots on May 18, 2015. Gasconade County

Chambourcin 30 inch shoots on May 21, 2015. Lawrence County
Cumulative Growing Degree Days for the Seven Grape Growing Regions of Missouri from April 1 to May 18, 2015.

<table>
<thead>
<tr>
<th>Region</th>
<th>Location by County</th>
<th>Growing Degree Days¹</th>
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<tbody>
<tr>
<td></td>
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<td>2015</td>
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<td>595</td>
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<tr>
<td>Western</td>
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¹Growing degree days at base 50 from April 1 to May 18, 2015. Data compiled from Useful and Useable at https://mygeohub.org/groups/u2u/tools. Click on link below to determine growing degree days in your area.

To determine the number of growing degree days accumulated in your area since April 1, click this link Search for GDD at your location using this tool.

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 573-882-0476 or volenbergd@missouri.edu.