Phomopsis cane and leaf spot

Weather forecast outlook for wet conditions and cool night temperatures are ideal for Phomopsis cane and leaf spot infection. On average, the month of May is the wettest month in Missouri, with rainfall averaging 5 inches.

Most all the major grape diseases need moisture on green tissue surfaces in order to cause infection. Major grape disease pathogens that require “free moisture” are downy mildew, phomopsis, black rot, and anthracnose. During periods of extended tissue wetness your scouting and preventative disease cover sprays should focus on managing the aforementioned pathogens.

Environmental Conditions Conducive to Phomopsis Infection

The casual agent *Phomopsis viticola* results in cane and leaf spot during wet and cool weather during the period from bud break to early summer. The optimum temperature range for disease development is 59 to 68° F (15 to 20° C). Be aware that these temperature ranges are the optimum temperatures at which phomopsis causes disease, but disease development often occurs at both lower and higher temperatures, but less disease occurs at these temperature extremes. Bugaret (1986) reported that most infections in the field occur shortly after bud break when temperatures ranged from 46 to 64° F (8 to 18° C) (see Erincik et al 2003). Phomopsis also requires moisture for infection. Wet weather results in spore release and subsequent infection. As the length of period of leaf wetness increases, the amount of phomopsis infection increases (Erincik et al. 2003). Depending on temperature, the duration of leaf wetness, and susceptibility of the grape variety to phomopsis anywhere from 4 to 12 hours of leaf wetness are needed for infection. In general, heavy rains during the month of May will result in higher incidence of phomopsis than a relatively dry May.
**Berry Infections**

Phomopsis on the grape berries is often not recognized until veraison. Berry infection by Phomopsis occurs early in the season pre-bloom to 4 weeks post bloom. Early in the infection period of the grape berry, phomopsis becomes inactive and the disease ceases development. Grape berries infected with phomopsis seldom show any visual symptoms until sugar levels start to rise steadily at the onset of veraison. As sugars rise in the grape berries the disease becomes active again and this results in fruit rot(s) and often the fruit falls from the clusters (shatters).

**Management**

Use dormant pruning to remove infected canes that are the source of primary inoculum. Dormant pruning has been used successfully to manage phomopsis (Gadoury 1995) but during cool wet springs growers should be cautious of not overlooking phomopsis cane and leaf spot.

Early cover sprays should contain Mancozeb or Captan to protect against phomopsis.

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**Black Rot**

Although the recent weather patterns have limited the duration of wetting periods for the development of black rot, there have been morning dew periods that have had extended duration. This has resulted in some black rot infections especially in vineyards that have not applied a protective cover spray. With rainy periods predicted for later this week, the potential for black rot infections will increase substantially. As temperatures rise between 70 and 80 °F only 7 and 6 hours of leaf wetness are required for black rot infections, respectively.

Black rot lesions can often be confused with advanced phomopsis lesions. Older Black rot lesions will often have black dots within the lesion. These black dots are fruiting bodies (pycnidia) that will release more infectious spores. These black fruiting bodies are absent on phomopsis lesions. You can see the pycnidia with the aid of a 10x hand lens. On the other hand if you suspect phomopsis, look for elongated lesions on the shoots of the first few basal nodes. Remember phomopsis overwinters on last years wood and an infected spur is in immediate proximity to the first few basal nodes of new shoots.
Early cover sprays starting at 1 to 3 inch shoots should include mancozeb to protect against black rot and phomopsis.

**Phomopsis and Black rot identification**

- **A**: Early infection by Phomopsis cane and leaf spot start as small chlorotic lesions.
- **B**: followed by small necrotic lesions with a yellow halo.
- **C**: Black rot lesions are necrotic with a darker brown to purple halo.
- **D**: As the infection ages, black fruiting bodies (pycnidia) become visible.

Photo credits: Dean Volenberg.
Chambourcin 9 inch shoots on May 4, 2015. Gasconade County

Vignoles 9 inch shoots on May 4, 2015. Gasconade County

Chambourcin 10 to 12 inch shoots on May 4, 2015. Lawrence County
Cumulative Growing Degree Days for the Seven Grape Growing Regions of Missouri from April 1 to May 4, 2015.

<table>
<thead>
<tr>
<th>Region</th>
<th>Location by County</th>
<th>Growing Degree Days¹</th>
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<td>Western</td>
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¹Growing degree days at base 50 from April 1 to May 4, 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