

## Vinews Viticulture Information News, Week of 18 June 2018 Columbia, MO



### Wetting periods and Downy mildew infections

Climatic conditions over the last two days have been ideal for downy mildew infections. Although prior hot dry periods limited primary infections of downy mildew, the return of cool humid conditions and rainfall will provide conditions for downy mildew infections. Sporangia and zoospores of downy mildew can survive on leaf surfaces more than 24 hours under cool humid conditions. The return to wet soil also provides the opportunity for oospores which are the resting stage of downy mildew to once again begin to germinate. The oospores produce a sporangium and the zoospores are released from the sporangia. Windy rainy conditions can then disseminate sporangia and zoospores to grape tissues.

Once an infection occurs symptoms will appear in 5 to 21 days depending on temperature, tissue infected, and ontogenic resistance (age related resistance of tissue). Ideal temperatures for symptom development is approximately 5-days when temperatures range between 60 – 77°F.

If you encounter downy mildew infections and have found one sporulating colony be sure to manage the problem. Phosphorus acid products will control downy mildew but only downy mildew. If your vineyard has had past problems with Black rot and Phomopsis then also applying captan would be beneficial. Most of the grape berries at this point should be nearly resistant to downy mildew. However, some grape cultivars take 5 to 6 weeks after bloom to develop resistance to downy mildew.

Return to hot weather conditions next week—what does this mean in regards to disease potential.

Wet soil conditions from rainfall events this week will result in high humidity and vigorous vine growth which will provide ideal conditions for powdery mildew infections. Unlike downy mildew, powdery mildew prefers moderate temperatures and dry conditions. Sulfur sprays provide excellent protection to powdery mildew on grape cultivars that are not sulfur sensitive. If you are spraying sulfur be sure to watch the thermometer as sulfur should not be applied when temperatures are above 85°F. If you find active sporulating colonies of powdery mildew then a potassium salt fungicide would be an option. Remember, captan has no activity on powdery mildew.



**Light yellow lesions or “oil spots” on the top of grape leaves are initial symptoms of a downy mildew infection.**

Photo credit: D. Volenberg.

## Dry weather next week and high heat and fungal development

### Powdery mildew

Generally mild weather results in increased powdery mildew growth. Spores of powdery mildew germinate over a wide range of leaf temperatures from 43 to 91°F. The optimum temperature for growth is 77 °F. The high temperatures during June likely have resulted in powdery mildew spore and colony death. Temperatures above 91°F for an extended period are detrimental to powdery mildew. Powdery mildew can be completely killed when temperatures are 95°F or higher for 12 hours and the colonies are exposed to UV light. Reproduction and growth of powdery mildew is severely limited when temperatures are greater than 90°F.



**Powdery mildew colonies on the top of a leaf of Marechal Foch.** Photo credit: D. Volenberg

In order for an epidemic of powdery mildew to begin there needs to be at least three consecutive days when temperatures are between 70 to 86 °F for a minimum of 6 hours each day. Looking at the short range temperature forecast for many areas of Missouri suggest that temperature conditions may become conducive to powdery mildew spore germination and colony development. As an example, Columbia, Missouri will have temperatures between (low/high) 69 to 87, 63 to 82, and 63 to 76 starting on Wednesday, June 20 through Friday, June 22, respectively.

Scouting for powdery mildew. Often powdery mildew begins on border rows that are shaded by trees. The trees limit the duration of time the vines are exposed to UV and also cool the air temperature. The temperature difference between direct sunlight and shade can be as much as 20 °F during the hottest period of the day. Thereby, tree shaded grapevines are likely experiencing optimum temperatures for powdery mildew growth and development even during extreme high temperatures. Additionally, powdery mildew often begins within the grape canopy where extreme shading occurs and humidity is higher from transpiration within the canopy microenvironment.

As the weather cools down over the next few days be sure to keep an eye out for powdery mildew development. Remember, powdery mildew spores do not need free water on green tissue to infect. Powdery mildew infection and colony growth is enhanced by high humidity. If your current vineyard cover spray has no protective qualities for powdery mildew, be sure to scout border rows that are shaded for powdery mildew colonies. Colonies of powdery mildew can form on both the top and bottom of the leaves.

## Cumulative Growing Degree Days for the Seven Grape Growing Regions of Missouri from April 1 to 18 June, 2018.

Region	Location by County	Growing Degree Days <sup>1</sup>		
		2018	2017	30 Year Average
Augusta	St. Charles	1310	1158	1105
Hermann	Gasconade	1246	1098	1064
Ozark Highland	Phelps	1378	1198	1140
Ozark Mountain	Lawrence	1353	1137	1136
Southeast	Ste. Genevieve	1308	1165	1155
Central	Boone	1323	1129	1071
Western	Ray	1240	1054	1037

<sup>1</sup>Growing degree days at base 50 from April 1 to June 18, 2018. 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. [Use 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