

The impact of downy mildew

A flavorful wine is a byproduct of a lot of careful attention to grape-growing, blending of flavors and masterful fermentation. Vintners know that everything from weather to pests can affect the finished product, and downy mildew is one variable such individuals may know all too well.

Downy mildew is caused by *Plasmopara viticola*. Native to North America, this oomycete even spread to Europe inadvertently in the late nineteenth century. It remains one of the most economically devastating plant diseases among global viticulture. Unlike true fungi, downy mildew is a "water mold" and it thrives in warm, humid conditions.

Horticultural experts say the disease cycle begins with oospores overwintering in leaf litter on the vineyard floor. According to Cornell University's Fruit Resources guidelines, infection requires temperatures of at least 10 C (50 F) and 10 mm of rainfall, all within a 24-hour period. These conditions trigger the release of spores which are splashed and spread into the vine canopy. Once established, the downy

mildew enters the plant through stomata, which are tiny pores, mostly on the leaf undersides. An "oil spot" that looks like yellowish, translucent lesion on the upper leaf surface may be an early warning sign. Under high humidity, the mildew produces a white, cottony substance on the underside of the leaf.

If left unchecked, downy mildew can lead to leaf loss on the plant and the rotting of grape clusters. This affects the vine's ability to store carbohydrates and can affect both current and future yields.

While it once was common to rely on widespread copper-based fungicides to treat downy mildew, the University of California Statewide Integrated Pest Management Program says an emphasis on more holistic strategies is best to reduce pathogen resistance and soil toxicity. These steps include:

- Increasing air flow and sunlight penetration to the grapevines by pruning and leaf pulling. This reduces leaf wetness duration required for the mildew to take hold.

- Avoid overhead watering and apply

water directly to the soil at the base of the plants.

- Scientists are developing fungus-resistant grape varieties and crossing them with North American species through modern breeding programs. This may be a possibility for those just starting their vineyards.

- Vintners are now utilizing weather station data and computerized models to time any fungicide treatments precisely to do pre-symptomatic interventions instead of broader spraying. Penn State Extension says downy mildew can begin to affect plants in the spring, so it's best to get a jump on treatment. Typical fungicides include a combination of copper sulfate and lime, according to the University of Wisconsin-Madison.

- Remove and destroy infected plant debris at the end of the season so it does not serve as a source of spores for the next growing season.

Downy mildew is a problem that affects a variety of plants, but notably grapevines, which can adversely affect yields and cut into profits.



HOPF EQUIPMENT



812-683-2763
hopfequipment.com

CASE IH



**BUILDING AND LANDSCAPE
SUPPLY**

See us for a full line of
**BUILDING MATERIALS, LUMBER
and LANDSCAPE PRODUCTS!**

www.hrblsupply.com

Located along Hwy 162 - One mile south of I-64, Ferdinand, IN

Email: office@hrblsupply.com

Phone: 812-367-1415

Delivery is available!