



# Grape Disease – Powdery Mildew

## What is Grape Powdery Mildew?

Grape powdery mildew (*Erysiphe necator*) is a fungal disease found on grape leaves and young berries. Symptoms of the disease include red blotches on the canes during dormancy and fuzzy white spots on the topsides of leaves. Approximately one week after initial infection, the fungus produces its signature whitish “powder” areas that are actually masses of spores that can colonize the entire berry surface.



Powdery mildew affecting top side of grape leaf<sup>1</sup>

## What is the Damage Caused?

Powdery mildew (PM) can cause severe damage to leaves and grape berries, lowering yield and quality of the harvest. The disease may create off odors in grape berries.

## How to Manage PM in Grapes?

**Monitor disease presence and temperature:** Examine young shoots for red splotches and undersides of lower leaves for the characteristic powdery appearance. Powdery mildew growth is highly dependent upon temperature. The disease reproduces rapidly at temperatures between 18°C to 30°C. However, short exposures (as short as 15 minutes) of temperatures higher than 35°C are lethal to the fungus. The disease can reproduce and spread even under low humidity conditions making irrigation adjustments ineffective at managing the disease.

**Fungicide Treatment Options:** Early season is the most critical time to manage PM.

All fungicides are best used as protectants for grape PM management.

- Wettable Sulfur: If the disease is present on the shoots, use wettable sulfur beginning at budbreak (the beginning of bloom), and then continue to monitor the disease for another 3 weeks. Since sulfur is most effective in its vapor phase, spray at temperatures between 18°C to 30°C. Applications at temperatures below 18°C will be ineffective and above 30°C can be toxic to the vine. Refer to product label for rates and specific application guidelines.
- When disease presence increases again, apply a sterol inhibitor, such as Myclobutanil (Rally\*) at 280 g/ha (4 oz/acre in at least 50 gal water). Mix 60 grams with at least 100 L water. Do not apply more than 1.7 kg/ha (1.5 lb/acre) in a single season. Studies show that three applications per season are sufficient. Do not apply within 14 days of harvest. Wait 24 hours after application before reentering the vineyard.

Note: Leaves and fruit gain natural resistance to PM when leaves reach their full size and after fruit set has occurred.

If the PM problem gets completely out of hand, do not spray any fungicides to “clean up” the vines, this will only create conditions for fungicide resistance to occur.

For more treatment options visit [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu)

\*Commercial name. The authors make no endorsement towards commercial brands mentioned in this document nor are the absence of other brand names an implication of our disapproval.

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**Sources:** Statewide IPM Program, Agriculture and Natural Resources, University of California

<http://www.ipm.ucdavis.edu/index.html>, UC Cooperative Extension – J. Hashim

Dept. Plant Pathology, Cornell Univ. – W. Wilcox

**Photo Credit:** <sup>1</sup>Jack Kelly Clark – UC IPM

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