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Downy mildew - *Plasmopara viticola*

Annemiek Schilder, MSU Plant Pathology

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Downy mildew is a widespread, serious disease of grapevines. Initial leaf symptoms are light green to yellow spots, called "oil spots" because they may appear greasy. Under humid conditions, white, downy spore masses can be seen on the lower leaf surface. These spores are wind dispersed. The lesions eventually turn brown as the infected tissue dies. Severely infected leaves drop prematurely, which can reduce winter hardiness of the vine. Infected flower clusters dry up or become covered with white spores under humid conditions. Infected berries turn a mottled dull-green or reddish purple and readily fall from the cluster. Although berries become resistant to infection within three weeks after bloom, the rachis remains susceptible for several weeks longer.



Young lesions.



White downy spore masses on the lower surface of the leaf.



Older lesions that have turned brown.

Photos: A. Schilder

The pathogen overwinters in infected leaves on the ground. In spring, spores are carried by rain splash to new leaves, where they require a film of water for infection. Lesions appear 5 to 17 days after infection. The disease can spread rapidly under warm conditions with frequent rain or dew. Use the 10-10-10 rule to decide when to start scouting for downy mildew: at least 10 cm (4 in.) of shoot growth, 10 mm (0.4 in.) rainfall and temperatures of 10°C (50°F) during a 24-hour period.



White spore masses develop on infected berries.

Photo: A. Schilder



On older leaves, lesions are smaller and more angular as they are delimited by leaf veins.

Photo: A. Schilder



Young shoot covered with spores. Photo: T. Zabadal



Photo: T. Zabadal

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