UNIVERSITY OF ILLINOIS EXTENSION
College of Agricultural, Consumer and Environmental Sciences

report on
PLANT
DISEASE

RPD No. 774
December 2020

DEPARTMENT OF CROP SCIENCES
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

BOTRYTIS BUNCH ROT AND BLIGHT

Botrytis bunch rot or gray mold, caused by the fungus *Botrytis cinerea*, exists in all vineyards in the world. The fungus causes blight of leaves, shoots, and blossom clusters, and bunch rot. Bunch rot is especially severe in grape cultivars with tight, closely packed clusters of fruit.

Symptoms

In early spring, buds and young shoots may be infected, turn brown, and dry out. At the end of spring and before bloom, large, irregular, reddish brown necrotic patches appear on a few leaves of a vine and are often localized on the edge of the lamina (Figure 1).

Figure 1. *Botrytis cinerea on a grape leaf (Courtesy APS, R. C. Pearson).*

Figure 2. *Botrytis cinerea on inflorescences (Courtesy APS, J. Bulit).*

Before capfall (bloom), the fungus may invade inflorescences, which rot or dry out and fall off (Figure 2). At the end of bloom, the pathogen frequently develops o the withered calyptras, stamens, and aborted berries attached to or trapped in the clusters.

The most common phase of this disease is the infection and rot of ripening berries (Figure 3). Fruit rot can spread rapidly throughout the cluster. Infected berries of white cultivars often

Figure 3. *Botrytis bunch rot (Courtesy APS, B. Dubos).*

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become brown and shriveled, and those of purple cultivars develop a reddish color. Under favorable weather conditions, the fungus produces a fluffy, gray-brown growth containing spores (Figure 4).

Figure 4. *Storage rot caused by Botrytis cinerea* (*Courtesy APS, R. C. Pearson*).

Disease cycle

The pathogen overwinters on debris in the vineyard floor and on the vine. The pathogen produces small, dark, hard, resting structures called sclerotia (Figure 5). Sclerotia are resistant to adverse weather conditions and usually germinate in spring. Germinated sclerotia produce spores (conidia), which spread the disease. Sporulation may also occur on debris left on the vine during the previous growing season, such as cluster stems remaining after mechanical harvest or mummified fruits. The pathogen usually gains a foothold by colonizing dead tissue prior to infections of healthy tissue. Tissue injured by hail, wind, birds, other diseases, or insects is readily colonized by *Botrytis*. Ripe berries that split because of internal pressure or because of early season infection by powdery mildew, are especially susceptible to infection by *Botrytis*. Conidia of the pathogen are usually present in the vineyard throughout the growing season. Moisture in the forms of fog or dew, and temperature of 59 to 77°F are ideal for conidia production and infection. Rainfall is not required for disease development, although periods of rainfall are highly conducive to disease development.

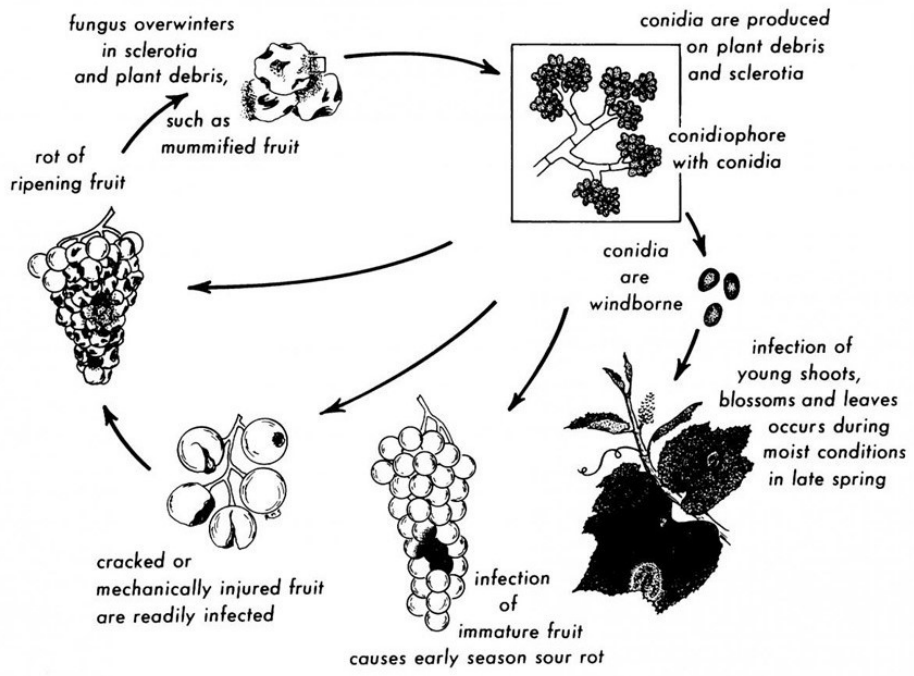

Figure 5. *Disease cycle of Botrytis bunch rot of grape* (*Courtesy New York State Agricultural Experiment Station*).

Disease management

Cultivars differ in susceptibility to Botrytis bunch rot based on the compactness of their clusters, the thickness and anatomy of the berry skin, and their chemical compositions (anthocyanins and phenolic compounds). Susceptible cultivars usually need to be protected against bunch rot by a

combination of cultural practices and fungicide applications. To slow development of the disease, avoid excessive vegetation through rootstock management and the judicious use of nitrogen fertilization, increase aeration and exposure of clusters to the sun by using appropriate trellising systems and by removing leaves around the fruit; and provide protection against diseases and insect pests capable of injuring the berries, particularly grape berry moths.

Chemical control is usually necessary but can be conducted only with preventive treatments. For the update information on chemical control of *Botrytis* on grapes, refer to the Midwest Fruit Pest Management Guide, University of Illinois Extension - ICSG (https://ag.purdue.edu/hla/hort/documents/id-465.pdf). This is an annually updated publication. Bunch rot in stored table grapes is generally controlled by sulfur dioxide fumigation combined with storage at 32°F.