

Botrytis Bunch Rot or Gray Mold of Grape

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Botrytis bunch rot is caused by the fungus *Botrytis cinerea*. This fungus is very common in nature and causes diseases on a variety of unrelated crops. Bunch rot can cause serious losses on highly susceptible grape varieties. Although berries of all grape varieties are susceptible to bunch rot, losses generally are greater on tight-clustered varieties of *Vitis vinifera* and French Hybrids. Losses result from the rotting of berries in the field or in storage.

Symptoms

Infection of ripe berries is the most common and destructive phase of this disease. Infected berries first appear soft and watery. The berries of white cultivars become brown and shriveled, and those of purple cultivars develop a reddish color. Under high relative humidity and moisture, infected berries usually become covered with a gray



Figure 1. Botrytis bunch rot of grape.

growth of fungus mycelium. One or a few berries within the bunch or the entire bunch may be affected. Generally, healthy berries touching infected berries will become infected. Rotted berries generally shrivel with time and drop to the ground as hard mummies. The fungus also can cause a blossom blight that can result in significant crop loss early in the season. Although uncommon, leaf infections also occur, but appear to be of no economic importance in Ohio. Leaf infection begins as dull, green spots, commonly surrounded by a vein. The spots rapidly become necrotic lesions.

Causal Organism and Disease Cycle

Botrytis bunch rot is caused by the fungus *Botrytis cinerea*. The fungus overwinters in grape mummies, dead grape tissues, and other organic debris in and around the vineyard, as well as on a multitude of alternate plant hosts.

Because of its wide host range, growers always should assume that the fungus is present in the vineyard. In spring, the fungus germinates from small, dark, hard resting structures known as sclerotia. The fungus then produces spores (conidia) that spread the disease. These spores are produced throughout the growing season. As blooms die, the spores germinate and colonize dead flower parts. Using the dead tissue as a food base, the fungus invades living tissue. After penetrating the berry, the fungus may remain dormant until the fruit sugar content increases and the acid content



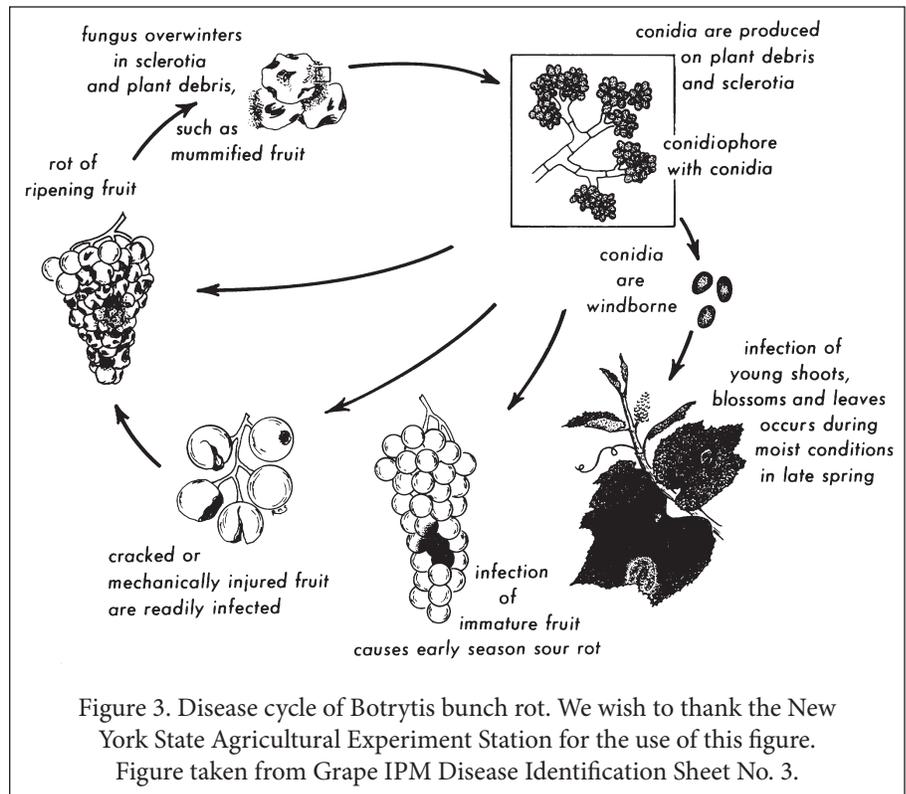
Figure 2. Close-up showing the fungus sporulating on berries.

decreases to a level that supports fungus growth. Symptoms then develop readily under warm, moist conditions.

Berries that escape bloom-time infection may become infected at or near harvest under favorable environmental conditions. Any wound on the berry provides an excellent infection site for the fungus even in the absence of favorable environmental conditions. Birds, insects, hail, and powdery mildew are common causes of wounds. Swelling during ripening in tightly packed clusters causes pressure that also can rupture the berries. Wet and humid conditions around the berries and leaves greatly enhance disease development. The longer wet conditions persist, the greater the probability of infection, even to undamaged berries. Warmer temperatures also favor infection. At 54 to 75 degrees F, infection occurs in 12 to 24 hours, while at 37 degrees F, 60 to 72 hours are required.

Control

1. Promote good air circulation and light penetration by proper pruning, controlling weeds and suckers, and positioning or removing shoots for uniform leaf development. Where possible, rows should be planted in the direction of the prevailing wind. Good air circulation and light penetration promote faster drying of plant parts and reduce the risk of disease.
Removal of leaves around clusters on mid- or low-wire cordon-trained vines before bunch closing has been shown to reduce losses caused by Botrytis in New York and California vineyards, due to improved air circulation and improved spray penetration and coverage.
2. Prevent wounding by controlling insects, birds, and other grape diseases.



3. In commercial vineyards, effective fungicides applied at appropriate times during the growing season provide significant control.

For the most current spray recommendations, commercial growers are referred to Bulletin 506-B2, *Midwest Commercial Small Fruit and Grape Spray Guide*. Although fungicide sprays for control of Botrytis bunch rot are generally not required in home or backyard vineyards, backyard growers are referred to Bulletin 780, *Controlling Diseases and Insects in Home Fruit Plantings*, for information on backyard fungicide use. Home owners are encouraged to emphasize use of the previously described cultural practices in order to reduce or eliminate the need for fungicide use. These publications can be obtained from your county Extension educator or the Extension Publications Office, The Ohio State University, 216 Kottman Hall, 2021 Coffey Road, Columbus, OH 43210-1044.

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