

Plant Diseases

Black Rot of Grape

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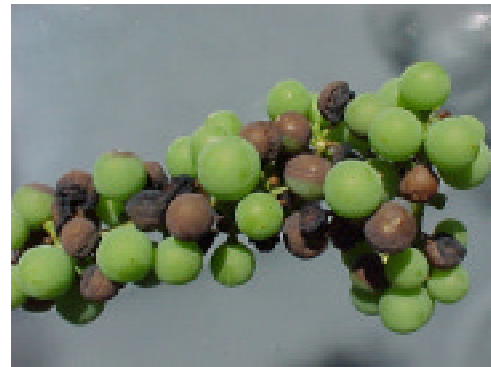
Black rot, caused by the fungus *Guignardia bidwellii*, is the most serious disease of grape in Tennessee. Precautions must be taken to protect grape plantings from this disease. The black rot fungus can attack many plant parts, including the leaves, shoots, flowers, tendrils and fruit. The most damaging aspects of black rot are rotting of the berries and loss of leaves.

Symptoms

Leaf spots appear one to two weeks after infection. The spots are small, tan and circular, enlarging to 1/8 to 1/4 inch in diameter. The color of the leaf spots deepens to reddish brown, and the spots are bordered by a dark brown margin. Numerous tiny black structures (pycnidia) of the fungus can be seen within the spot centers. Pycnidia are the fruiting bodies of the fungus, and bear spores, which infect new tissue.

Black, sunken spots (lesions) appear on leaf stems and berry stems. Lesions on shoots are usually elongated and black. Pycnidia appear on stem lesions as small, black pimples.

Fruit symptoms begin as light brown, circular spots on immature berries. The spots enlarge rapidly and, within a few days, the berries shrivel into black, wrinkled "mummies," which drop easily. The entire cluster may be affected. As with leaf spots and stem lesions, black rot mummies are covered with pycnidia.



Disease Cycle

The black rot fungus overwinters in mummies on the ground and on the vine, and in stem lesions and fallen leaves. In early spring, young tissues are infected when warm, wet weather causes spores to be produced by the over-wintered fungus. Spores produced either in pycnidia or in other fruiting structures called perithecia, present only on mummified berries, are spread to susceptible tissues by air currents and splashing rain.

If the weather is warm and moist, the spores germinate and the fungus penetrates the plant tissue. Once the fungus has become established in susceptible tissue, secondary spores called conidia are produced in pycnidia. Conidia ooze from the pycnidia in wet weather, and are splashed by raindrops to leaves, stems and young fruit. The spores cause infection of these tissues whenever they are wet for 12 hours or more.

Berry infections begin during the bloom period and continue until the berries begin to color. The rising sugar content of the berries makes them resistant. The disease can continue to spread, however, on young leaf and shoot tissues. Spread essentially ends by late summer.

Control

1. Cultural practices that promote fast-drying of the planting following rain or dew will aid in black rot control. These practices include proper vine spacing,

selection of a well-drained planting site exposed to full sun, proper pruning (refer to Extension PB 1475, **Grape Growing in Tennessee**) and removal of tall weeds.

2. Reduce primary (spring) infection by burning or otherwise destroying prunings and diseased and overwintering berries and leaves. If possible, disk the soil before bud-break to bury the mummified berries and prevent the spores from reaching the vines.

3. Many cultivars have some resistance to black rot. Reliance, Niagara, Concord and Catawaba are susceptible, whereas Fredonia and Delaware are moderately resistant. The reactions of many other cultivars are variable, apparently depending upon location and the strain of the fungus present.

4. Apply fungicide sprays, as outlined in Extension PB 1622, **Disease and Insect Control in Home Fruit Plantings**, or Extension PB 1179, **Commercial Small Fruit Spray Schedules**. The early-season sprays are the most important. If not controlled early, the fungus may attack the young tissues and build up a reservoir of spores capable of infecting the fruit later in the season. The summer sprays are needed in wet summers. Correct timing and thorough spray coverage are essential for control.

Precautionary Statement

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store, or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label.

Disclaimer Statement

Pesticides recommended in this publication were registered for the prescribed uses when printed. Pesticide registrations are continuously being reviewed. Should registration of a recommended pesticide be cancelled, it would no longer be recommended by The University of Tennessee.

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SP 277J-2M-7/01(Rev)

E12-4615-00-004-02

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