

Black Rot of Grapes

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Introduction

Black rot of grape (caused by the fungus *Guignardia bidwellii*) is probably the most widespread infectious disease of grapes in Arkansas. Both the domestic and muscadine grape are primary hosts for this disease. It may cause more losses than all other grape diseases combined. Although the fungus can attack the leaves, fruit, tendrils and young canes, fruit destruction is the principal impact of this disease. The disease is sometimes referred to as “bird’s eye” because of the symptoms on the berries. Disease incidence tends to be higher in areas of the vineyard that border tree lines where air movement may be impeded. Although most leaf and fruit infections occur in the spring, the disease can spread anytime during the growing season. Black rot is much less significant during transportation and storage as compared to the time that the fruit is on the vine. Generally speaking, black rot is more destructive in warm and humid regions than it is in the drier, cooler regions.

Symptoms

Foliar symptoms are usually the first obvious evidence of the disease. Roughly circular leaf spots usually appear in late spring. Small black specks or “dots” appear scattered within the spots and can be seen easily with the naked eye or a hand lens. These dots are the fruiting bodies of the fungus. Leaf spots sometimes have a red margin.

Although black rot can produce symptoms on any green portion of the vine, the most dramatic damage occurs to the berries. Infected berries turn dark blue-black and shrivel. Infected berries often cling to the cluster and resemble “raisins” (Figure 1). Upon closer examination, the tiny black fruiting bodies (pycnidia) can also be seen on the surface of the shriveled berries (Figure 2) and leaves (Figure 3).



Figure 1. “Raisins” of black rot on fruit cluster



Figure 2. Black rot fruiting bodies on infected berries

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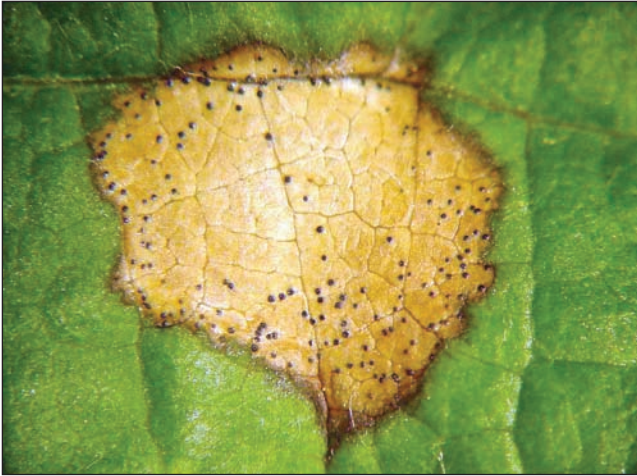


Figure 3. Leaf spot with black fruiting bodies



Figure 4. Stem lesion with fruiting bodies of black rot

Entire fruit clusters can become infected and rot. Older berries tend to be more resistant to infection than younger berries. Stems can develop brown, sunken lesions that also contain pycnidia (Figure 4). Spores are dispersed by splashing water and wind. These tiny black structures are an important diagnostic feature of this disease. Leaf loss and stem damage due to fungal infection are not usually significant when compared to the fruit infections.

Disease Cycle

The black rot fungus usually overwinters in the shriveled (mummified) berries that remain on the ground or attached to the old fruit clusters that remain on the vine. Rainy periods in the spring often trigger spore production and release from these infected tissues. Leaf wetness and ambient temperature are very important for disease development. At 70°F, leaf lesions may appear as soon as one week after infection occurs. Spores of the fungus may be dispersed through late summer, at which time their numbers often decline due to the dry environmental conditions.

Management

Disease management is most effective early in the season, before the fruit rot phase has developed. For small home garden plantings, removal and destruction of infected fruit clusters (mummies) and leaves during the late fall or winter can minimize

disease incidence and severity the following growing season. Infected clusters and leaves may also be disposed of by burying in the soil. Weed control around plants encourages good air movement helping to keep leaves dry, reducing disease. Although many grape cultivars have some level of resistance to black rot, fungicide applications may be necessary, especially during rainy periods in the spring.

Chemical control options for the homeowner include fungicides containing the active ingredients of copper, lime sulfur, Bordeaux mixture, Captan or myclobutanil. To be effective, fungicide applications should begin early in the spring when young shoots are developing. Sprays may also be timed to anticipate rain events. For additional details on the use of fungicides on grapes, read Extension publication MP467, *Arkansas Small Fruit Management Schedule*. This publication is available at any local county Cooperative Extension office or online at <http://www.uaex.uada.edu>.

Contact your local county Extension office for information about collecting and submitting grape tissue for disease evaluation. Prompt and accurate disease diagnosis will make disease management more effective. The Plant Health Clinic at Fayetteville provides accurate disease diagnosis for grapes and other fruit. The clinic is a valuable resource for homeowners and other growers in making plant disease management decisions.

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