

# GRAPES



Disease Identification  
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CORNELL COOPERATIVE EXTENSION

## Phomopsis Cane and Leaf Spot of Grape

*Phomopsis viticola* (Sacc.) Sacc.

**J. W. Pscheidt and R. C. Pearson**

Department of Plant Pathology

NYS Agricultural Experiment Station

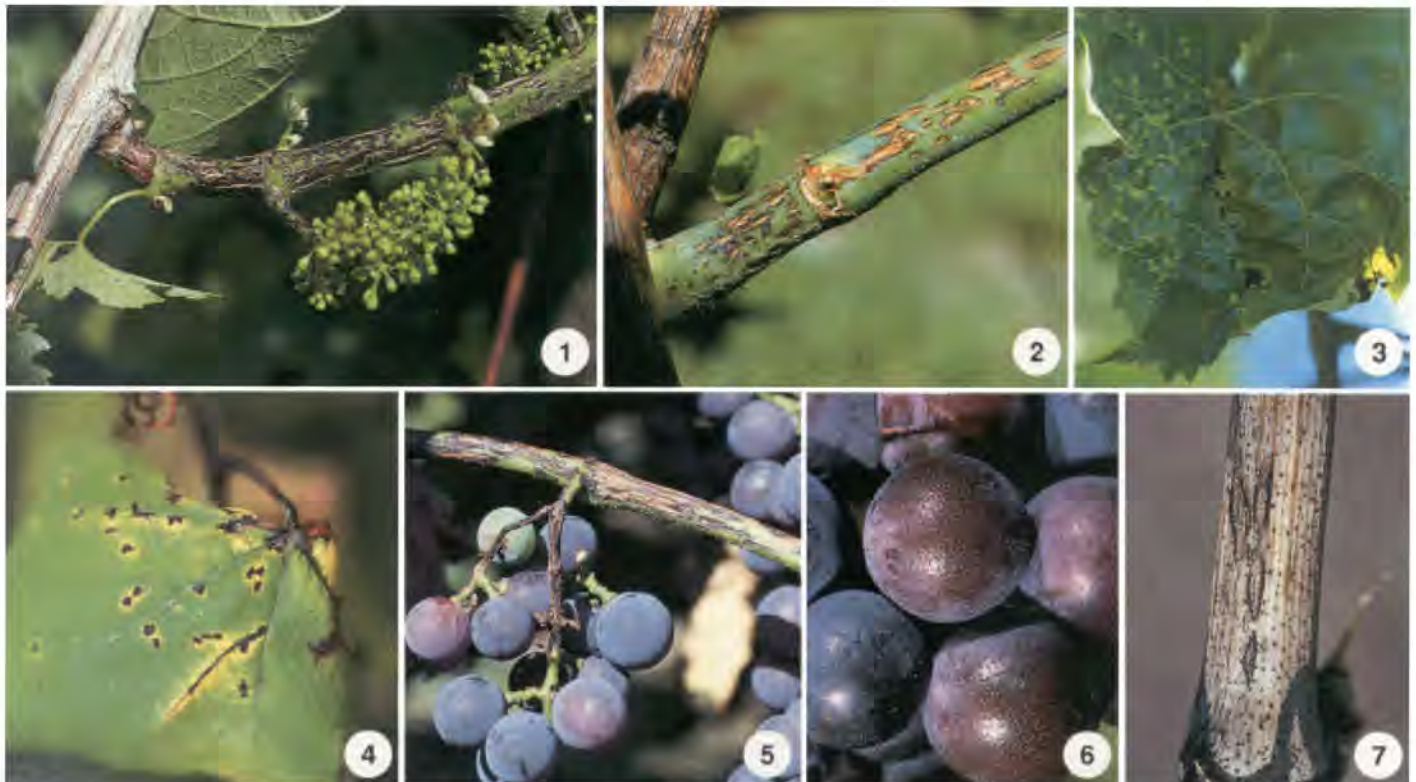
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Phomopsis cane and leaf spot, once known as "dead arm," is a common disease in most regions of the world where viticulture is practiced. Severely infected leaves are misshapen, yellow, and fall from the vine prematurely. Infected rachises are brittle so that portions of the cluster may fall off before harvest. Infected fruit are discolored and can drop to the ground before maturity. When incidence of the disease is high, crop losses of 10 to 40 percent can occur.

### Symptoms and Signs

Lesions on shoots, leaves, and rachises are the most common symptom of the disease. Infections on shoots give rise to elongate lesions or cracks that are most numerous on the first six basal internodes (figs. 1 and 2). The surface of severely infected shoots is rough, black, and appears crusty. Symptoms on foliage first appear as small, light green lesions with irregular, occasionally star-shaped, margins (fig. 3). These lesions turn black with yellow margins as the leaves get older (fig. 4). Heavily infected leaves become misshapen with a crinkled appearance. Numerous dark lesions on the petiole may cause the leaf to yellow and abscise. Lesions on the rachis are sunken, black (fig. 5), and cause it to become very brittle. If lesions girdle the rachis, berries below the infection may shrivel. Near harvest time, infected fruit develop a brown discoloration, and numerous black fruiting bodies of the fungus may appear in the skin of the berry, giving it a rough texture (fig. 6). In many grape cultivars, the infected berries are easily detached from their pedicels. The detached vascular strands (brush) remain in these berries, leaving dry stem scars.

During the dormant season, infected canes may become bleached, and numerous black fungal fruiting bodies are produced (fig. 7). The previous year's infection may be visible on these canes.



## Disease Cycle

Rainy weather during the early growing season favors disease development. Spores (pycnidiospores) are produced within the black fruiting bodies (pycnidia) and ooze out during wet weather. These spores are then splashed by the rain onto newly developing shoots. Shoot tips may become infected at any time during the year, but infection is more common between bud break and bloom. Shoot and leaf lesions typically appear 3 to 4 weeks after infection.

Infection of the rachis can occur from the time clusters are first visible, when shoot growth measures 2 to 3 inches, through fruit set. Fruit becomes infected at or shortly after bloom, but the fungus remains latent until the fruits ripen. Symptoms of fruit rot and most rachis lesions begin to appear 1 to 3 weeks before harvest. Infected leaves may not develop symptoms until they become senescent. Some infections of the shoot may never develop symptoms but will produce pycnidia during the dormant season.

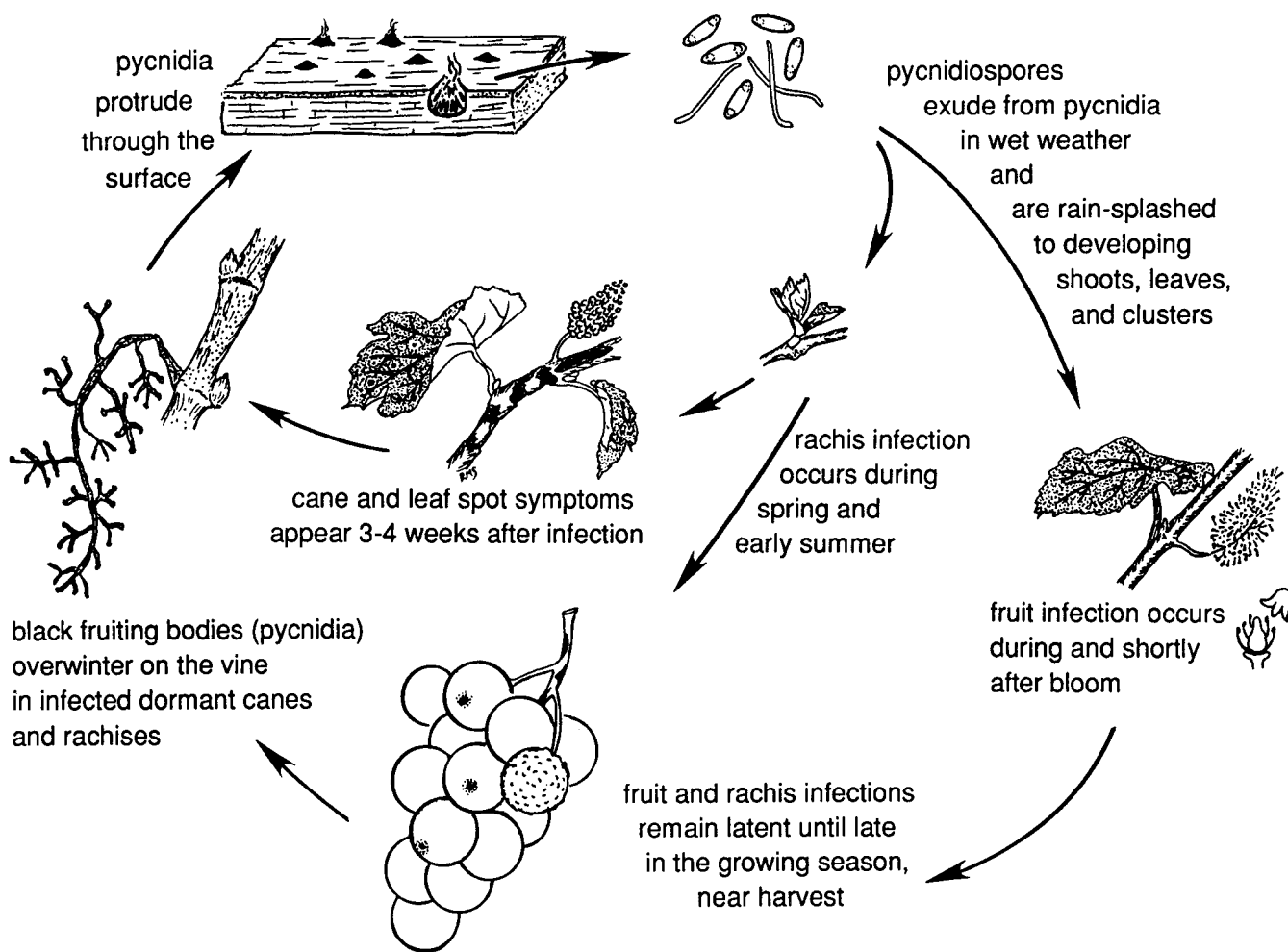
The fungus overwinters on the vine in infected canes and rachises and may survive and sporulate in dead infected canes for more than one season. Spores from pycnidia are produced in the spring to renew the disease cycle.

## Control

Cultural practices that increase air circulation in the vineyard will help reduce prolonged wet periods that favor disease development. Removing diseased canes from the vine during normal pruning operations in the dormant season reduces the number of pycnidia and the risk of infection. If pruning is nonselective, infected canes may remain in the canopy. Therefore, mechanically pruning or hedging will increase the likelihood of infection. Follow-up hand pruning, use of protectant fungicides, or both must be done to control disease in these situations.

This disease can be controlled by applying protectant fungicides before rainy weather begins. Applications should begin when shoot growth reaches 1 inch and continue through fruit set. In some viticultural regions, applications of fungicide during the dormant season are recommended for control of this disease. Consult your local Cooperative Extension office for up-to-date control recommendations.

## PHOMOPSIS CANE AND LEAF SPOT



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