



CAES

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BLACK SPOT OF ROSE

Black spot is one of the most common and serious fungal diseases on outdoor rose plantings. The disease occurs all over the world wherever roses are grown. Infection of the leaves can result in dark brown spots and yellowing, which results in defoliation and an unsightly appearance.

SYMPTOMS AND DIAGNOSTICS

The initial symptom of the disease includes small, brown spots with feathery margins on leaves. Lesions enlarge with circular or irregular shapes and become dark brown to black in color (Figure 1). The size of lesions can vary among varieties, but often range between 1/16 and 1/2 inch in diameter. Leaf tissues that surround the lesions can turn yellow and the entire leaf may drop (Figure 2). Symptoms are first observed in the



Figure 1. Dark brown spots on leaves

lower canopy of rose plants and progress upward during the growing season. Early defoliation can reduce flower buds and make plants more susceptible to winter injuries. When one-year-old canes are infected, raised, purplish-red spots or blotches are noticeable on stems which, in turn, become blackened and blistered. Although lesions on canes rarely kill branches, the fungus can overwinter on infected stems and serve as a continuing source of inoculum during the season.

DISEASE DEVELOPMENT

Black spot of rose is caused by the fungus *Marssonina rosae*. The pathogen can overwinter in diseased plant debris including leaves and stems in spore bearing structures called acervuli. Spores are dispersed from



Figure 2. Yellowing of a leaf with brown spots

inoculum sources to newly emerging leaves by rain splashes and irrigation water in the spring. These early infections start the disease cycle for the season. Fungal spores formed on these infected leaves then spread to other leaves and plants and repeat repeatedly during the growing season. Spore germination requires water or high relative humidity (>90%) for at least 7 hours. The optimal temperatures for spore germination and disease development are 65 °F and 75 °F, respectively. So, warm temperature and wet/or moist conditions that leave a film of water on the leaves are favorable for disease development. Summer temperature above 90 °F can slow the disease and limit epidemics.

MANAGEMENT

Resistant Cultivars: Using genetic resistance is the most effective way to control black spot of rose. Resistant rose varieties include Nearly Wild (pink shrub), Jens Munk (pink shrub), Albo-plena rugosa rose (white shrub), Henry Hudson (light pink shrub), David Thompson (red shrub), Charles Albanel (pink shrub), John Cabot (red climber), William Baffin (dark pink climber), J.P. Connell (yellow shrub), and Louis Jolliet (pink climber). Resistance of rose varieties to the disease may vary from region to region since different pathogenic races of the fungus exist.

Cultural practices: Select sunny and open areas for roses and space plants properly to allow good air circulation. Avoid overhead irrigation that may disperse fungal inoculum and provide favorable conditions for fungal infections. If overhead irrigation system is used, plants should be watered in the early morning to allow water on leaves to dry during the day. Rake and remove fallen leaves in the fall and prune out diseased canes in the spring to reduce inoculum. Do

not put diseased plant materials into compost piles but discard or bury.

Fungicides: For susceptible roses, fungicide sprays are needed to prevent the disease. Fungicide applications should be initiated around budbreak and continued at 7- to 14-day intervals whenever weather conditions are favorable for the disease. Fungicides that are registered in Connecticut include chlorothalonil, triforine, thiophanate-methyl, captan, mancozeb, fixed copper, and sulfur. Please read and follow label directions when you purchase and use fungicides.

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