The Pathogen and Disease Symptoms

Sphaeropsis rot, a postharvest fruit rot disease of apple is caused by the fungus *Sphaeropsis pyriputrescens*. Stem-end rot and calyx-end rot are two common symptoms of Sphaeropsis rot on apple fruit. The color of decayed areas is light brown to brown and may turn darker as the decayed area ages. As the disease advances, the peel color of the entire decayed fruit may be similar or vary across the fruit surface (Fig. 1). Fruit decays caused by Sphaeropsis rot have a distinct "bandage-like" odor, particularly in the decayed flesh when the fruit is cut.

![Figure 1. Symptoms of Sphaeropsis rot on Red Delicious apple fruit.](image)

Sources of Pathogen Inoculum

The inoculum of *S. pyriputrescens* is present in apple orchards. The ‘Manchurian’ crabapple used as pollinators in apple orchards is highly susceptible to twig dieback and canker disease caused by this fungus (Fig. 2). However, canker on apple trees caused by this fungus is not common in Washington State.

![Figure 2. Twig dieback and canker on ‘Manchurian’ crabapple caused by *S. pyriputrescens*. Black dots on diseased tissue are the fungal fruiting bodies.](image)
S. pyriputrescens can survive on dead tissues on apple and crabapple trees and often form fruiting bodies on infected, dead tissues of trees. The fungus can also infect crabapple fruit and forms fruiting bodies on mummified fruit left hanging on the trees (Fig. 3). The fruiting bodies contain millions of spores, which serve as inoculum for infection of apple fruit. Spores are dispersed by water. Infection of apple fruit by this fungus occurs in the orchards, and fruit rot symptoms develop during storage.

![Figure 3. Fruiting bodies (small black dots) of S. pyriputrescens on infected crabapple fruit.](image)

**Disease Control Recommendations**

The fruiting bodies on infected crabapple twigs and branches, as well as, those on infected crabapple fruit serve as important sources of inoculum in apple orchards. Removal of twigs with dieback and cankers and mummified crabapple fruit will help reduce inoculum of the fungus in the orchard.

Water spreads the fungal inoculum and creates conditions conducive for fruit infection. Therefore, it is recommended that overhead irrigation be avoided and that over-tree cooling be limited in duration to only the amount needed for sunburn prevention.

Preharvest fungicides Pristine and Ziram applied near harvest as a ground application reduce Sphaeropsis rot caused by *S. pyriputrescens*. Good coverage is important to the effectiveness of preharvest fungicide sprays.

A postharvest fungicide drench with Penbotec (pyrimethanil), Scholar (fludioxonil) or Mertect (thiabendazole) is very effective in controlling Sphaeropsis rot on apple fruit. In general, these three postharvest fungicide treatments are more effective than the preharvest fungicide sprays.

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