

Brown Rot

Monilinia fructicola

I. Introduction: Brown rot is one of the most important diseases of stone fruits in the mid-Atlantic region. Field losses of sweet and sour cherries can be extensive if conditions favorable for disease development occur during the blossom period, following shuck fall, or during the preharvest and harvest period.

II. Symptoms: Under environmental conditions favorable for *M. fructicola*, and where overwintering inoculum is abundant, immature sweet cherry fruit exhibit a range of symptoms from superficial-appearing red halos, 3/16 to 1/4 inch (5-19 mm) in diameter, to necrotic pitted areas up to 1/4 inch (6-7 mm) in diameter. Symptoms on ripe fruit are similar to those reported for peach and nectarine (photo 2-71).



III. Disease Cycle: In general, the disease cycle of brown rot on cherries is similar to that on peaches and nectarines. On sour cherry, the incidence of blossom blight caused by *M. fructicola* is proportional to temperature and duration of wetness, with as little as five hours of wetting needed at 68 F (20 C) to cause significant infection. With 24 hours of wetting, severe infection may result regardless of temperature. Optimum temperatures for blossom infection of cherry range from 72 to 77 F (22-25 C). Between 32 to 86 F (0-30 C), temperatures above or below the optimum range delay germination but do not inhibit it. Inoculum concentration also interacts with temperature and wetness duration to influence incubation period and disease incidence and severity. Sour cherry mummies from the previous growing season may remain in the tree and provide the primary inoculum for fruit rot in the next year. For cherries, the optimum temperatures for fruit infection are 68 to 72.5 F (20-23 C). Latent infection of sweet cherry has been reported.

Infection can occur at the bloom stage or shortly thereafter, with symptoms appearing as fruit reach maturity.

IV. Monitoring. During or after pruning (before the white bud stage), monitor a minimum of 20 sample trees per block for the presence of fruit mummies and cankers. A total of one to ten mummies and/or cankers, and greater than ten mummies and/or cankers represents levels of moderate and high risk, respectively, for blossom infection under the appropriate environmental conditions.

At shuck fall, examine ten shoots on each sample tree for the presence of blossom infection. A total of one to ten blossom infections and greater than ten blossom infections represents moderate and high risk, respectively, for fruit infection during the preharvest and harvest periods. On sweet cherries, fruit infection may be visible at this time as small red flecks or, under high inoculum conditions, as dark pitted areas on the fruit. Examine ten fruit clusters on each sample tree. Any early fruit infection represents a high risk for this disease.

Mummies in trees at the fruit ripening stage are the primary source of inoculum for the fruit rot phase of the disease. Immature infected sweet cherry fruit exhibit a range of symptoms from red halos to necrotic pitted areas. Record the incidence of mummies in sample trees.

Fruit susceptibility to brown rot (photo 2-71) increases rapidly as fruit begin to color. During the preharvest period, monitor ten fruit clusters on each sample tree for disease incidence. Greater than two infected fruit clusters per ten acres (eight trees sampled) represents a high risk for a brown rot outbreak at this time. Monitor approximately every three to five days during the preharvest period. Insect, bird and hail damage to ripening fruit can result in wounds which can be quickly colonized by the rot fungus. Brown rot will show up first in areas near sources of inoculum and where fruit may be physically injured.

Brown rot may develop during storage and shipment if fruit are not handled properly during and after harvest. Monitor daily for developing decay in fruit being temporarily stored by checking fruit throughout a minimum of containers.

V. Management: See the Management section under Brown Rot of Peaches and Nectarines.

TEXT PREPARED BY A.R. BIGGS, K.D. HICKEY, AND K.S. YODER

READ LABELS CAREFULLY AND USE CHEMICALS IN ACCORDANCE WITH LABEL CAUTIONS, WARNINGS, AND DIRECTIONS. REQUEST A MATERIAL SAFETY DATA SHEET (MSDS) FROM THE MANUFACTURER FOR EACH PRODUCT YOU USE.

Trade and brand names are used only for the purpose of information, and the West Virginia University Extension Service and/or West Virginia University Davis College of Agriculture, Forestry, and Consumer Sciences does not guarantee nor warrant the standard of the product, nor does it imply approval of the product to the exclusion of others, which may also be suitable. The West Virginia University Extension Service and/or West Virginia University Davis College of Agriculture, Forestry, and Consumer Sciences assume no responsibility in the use of hazardous chemicals.