

Plant Disease Notes

Brown Rot of Stone Fruit

ANR-1182

Brown rot, the most common and destructive disease of peaches in the Southeast, is caused by the fungus *Monilinia fructicola*. Brown rot can occur on nectarines, plums, prunes, cherries, and apricots. The disease is most severe in areas where spring and summer rains are frequent. The greatest loss from brown rot results from the fruit's rotting in the orchard, in storage, in transit, or at the market.

Symptoms. Brown rot damage can be found on the fruit, blossoms, twigs, and branches of infected trees. The symptoms are similar on all stone fruit. When a full flower crop is present, Brown rot blossom blight seldom causes any significant crop loss in peaches. With blossom blight, infected flowers suddenly wilt, turn brown, and wither. Later, the flower parts are covered with tan-gray spore tufts. The dead plant parts cling to the flower stem for an indefinite time.

Twig and small-branch cankers occur when the fungus grows into the woody tissue from either blighted blossoms or fruit. Oval or elliptical cankers are formed that are usually brown and sunken. Gum commonly oozes out at the edge of cankers during wet periods. Scattered tannish-gray spore tufts also appear on the surface of the bark. Twig blight occurs when a canker completely girdles a twig causing the leaves on the distal end of the twig to wilt, wither, and die. The dead leaves usually remain attached to the blighted twigs.

Fruit infection begins as small, round, light brown, superficial spots on the fruit surface. In warm, wet weather, the rot develops very rapidly. Within 3 or 4 days the entire fruit becomes watery and decayed

and turns a light brown color. Numerous, tannish-gray spore tufts break through the fruit skin, giving it a powdery appearance. The spore tufts are often arranged in concentric rings around the infection site, which is typically some type of wound (e.g., insect injury). Often, the entire fruit is covered with tan to gray spore tufts. The fruit retains its form but later shrinks and mummifies. A few rotted fruit remain attached to the tree, gradually drying into firm, black encrusted mummies. Brown rot can be distinguished from *Rhizopus* rot in that the skin on fruit infected with *Rhizopus* slips off very easily and the flesh is more soft and watery.

Persistence and Transmission. The fungus overwinters as mummified fruit or in twig and branch cankers. Spores are produced in the spring under favorable conditions and are carried by air currents to the blossoms and young shoots. Infection occurs at temperatures as low as 41 degrees F, but the optimum temperature for infection is 77 degrees F. Infection is favored by the presence of moisture from dew or rain. The infected blossoms soon wilt, and tan-gray tufts of spores develop (the summer spores) on the outside of the flower shuck. If the infected blossoms do not drop off, the fungus soon grows through the pedicel to the twig and forms a canker. Spores can also be produced on the newly cankered twig surface under wet conditions. Summer spores are spread by wind, rain, and insects to the developing fruit. Maturing fruit are very susceptible to infection by the brown rot fungus. Young fruit are also susceptible, but they have tough skin that brown rot spores typically cannot penetrate. For this reason, young uninjured fruit are fairly safe from infection.

Various injuries provide entry points for brown rot spores into fruit. Various insects, such as plum curculio and stink bugs, hail damage, limb rubs, twig punctures and fruit cracks, as well as a variety of picking and packing injuries, can produce brown rot infection sites. Brown rot spores are virtually everywhere during the fruit ripening period and infection is almost certain if wet weather persists and the skin of the fruit is ruptured.

Control. The most critical time for control of brown rot is during bloom and just prior to harvest. A low risk spray program requires at least two to three fungicide applications during bloom and two to three shortly before harvest. See Extension publication ANR-500-A, *Alabama Pest Management Handbook—Volume 1*, for a list of recommended fungicides and spray schedules.

Sanitation is also very important in controlling brown rot. All dropped and rotted fruit should be picked up and destroyed promptly. At the same time, remove all mummies from the tree. Clean cultivation, such as disking prior to bloom, reduces the chances of mummified fruit on the ground.

The proximity of inoculum sources such as wild plums, off-type trees where

the disease was not controlled the previous year, and abandoned orchards are common sanitation problems. Removal of wild or neglected stone fruit trees and brush surrounding the orchard is beneficial. Orchards abandoned after a destructive frost can have a tremendous buildup of brown rot on the few remaining fruit; these blocks will require special attention the following spring.

Prune out all cankers during the dormant season. Open-center pruning is important to ensure complete coverage and fast drying of the foliage and fruit.

Post harvest control of brown rot begins with a good preharvest fungicide program that prevents buildup of the disease in the orchard. An insecticide program that reduces insect damage to the fruit is also beneficial. Harvest needs to be closely supervised to avoid fruit injury due to careless handling. If a hydro cooler is utilized, change the dump water frequently to avoid the buildup of brown rot spores, even when chlorine is used. Fruit should be cooled quickly to below 40 degrees F. Maintain this temperature during handling and storage and in transit to market. The activity of the brown rot fungus is greatly reduced at temperatures below 40 degrees F.



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Use chemicals only according to the directions on the label. Follow all directions, precautions, and restrictions that are listed.

For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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Web Only, Revised Nov 2004, ANR-1182

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