

Plant Disease Notes

Black Rot and Frogeye Leafspot

Black rot and frogeye leafspot, caused by the fungus *Botryosphaeria obtusa*, are names that describe two distinct symptoms of the same disease. This disease is common in apple orchards in the Southeast and can cause extensive fruit loss (black rot) and defoliation (frogeye leafspot) if not controlled.

Symptoms. On fruit, the disease usually starts at the calyx end. At first, a light brown spot forms on the fruit. Usually only one spot occurs per fruit. With time, this spot enlarges and develops a series of brown and black concentric bands or rings. The infected fruit eventually turns brown, remains firm and leathery, and holds its original shape until the entire fruit is rotted. When completely decayed, the fruit will dry and shrivel into a black mummy that may remain in the tree for a long time. Black pimple-like fungal fruiting structures appear on the surface of the rotted fruit. The flesh of black rot-infected fruit remains firm in cold storage.

Small, purple specks appear on leaves, starting near petal fall. These speckles enlarge to form spots up to ¼ inch in diameter. The typical round spots develop a light brown to gray center surrounded by one or more dark brown concentric rings and a purple

margin giving it a frogeye appearance. Black fungal fruiting structures may develop on the upper leaf surface in the centers of older leafspots. These distinguish frogeye leafspot from spots caused by abiotic disorders (spray burn).

Persistence and Transmission.

The black rot fungus survives on dead wood and mummied apples in trees and on the ground during the winter. In the Southeast, spores produced from December to March are washed into buds by rainwater. When buds start to swell (silver tip stage), the spores germinate, infect the flower parts and grow into the core area of the developing fruit. The fungus remains dormant until the fruit starts to ripen, then it grows into the flesh and causes a firm, brown rot, often at the calyx end.

After petal fall, additional fruit infections can occur anywhere on the fruit. Infections are most common in late June, July, or August. The optimum temperature for fruit infection ranges from 60 to 75 degrees F. At least 9 hours of wetting are required for infection at these temperatures. Leaf infections can occur during the bud stage or anytime during the spring or summer when the foliage is wet. The fungus can infect twigs killed by fire blight in the spring. By June,

B. obtusa produces more spore-producing structures on this dead wood. These spores can cause infections on the fruit and foliage throughout the summer.

Control. To effectively control black rot, remove all dead wood from the tree and ground, including current season prunings. This wood needs to be burned, removed to a landfill, or

chopped and composted. Chopped wood should not be used as mulch in the orchard until it has been thoroughly composted. Apply a fungicide at silver tip to prevent infection in the buds. See Extension publication ANR-500A, *Alabama Pest Management Handbook*, for a list of recommended fungicides and spray schedules.



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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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