

## APPLE ANTHRACNOSE (BULL'S EYE ROT)

Apple anthracnose is a common canker disease of apple trees in western Washington and in other wet coastal regions of the Pacific Northwest. Occasionally the fruit is attacked, causing a rot, but damage to the limbs is the most serious phase of the disease.

The disease is found to a lesser extent on pear, quince, and wild crabapple (*Malus rivularis*). Bull's eye rot of apple fruit and perennial canker of apple are similar diseases, but are usually found in the drier, colder areas east of the Cascade Mountains.

Infection generally occurs during fall rains but can take place throughout the winter and early spring during mild, wet weather. Spores of the fungus, *Pezicula malicorticis* (*Crytosporiopsis curviospra*), formed on the dead bark of older cankers, are splashed to other twigs and branches and infect through wounds or natural openings in the bark. These infection areas appear as small, circular, reddish brown spots on the bark in late fall. The discoloration extends into the tissue as far as the sapwood. Canker growth is very limited during

the winter, but they begin enlarging rapidly in the spring.

The cankers usually form on young branches, and are generally less than 2 inches in diameter, but some may develop on larger branches or young tree trunks. By June, the cankers have grown to full size and subsequent branch growth results in formation of a crack around the canker (Fig. 1). Full-grown cankers are elongate, from 1–10 inches in length, and up to several inches wide but most are 2–5 inches long. There may be one or many on a single branch. Girdling



Fig. 1. Anthracnose cankers often have a "stringy" appearance. The bark splits and becomes loose.

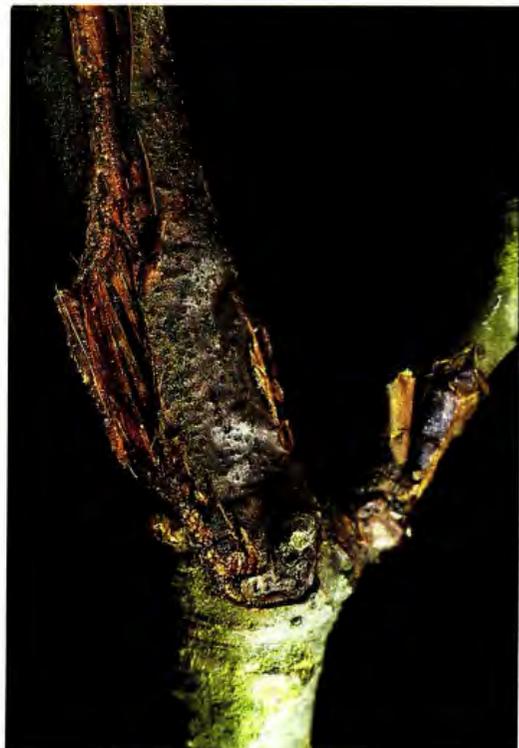


Fig. 2. A spore producing canker showing guitar string symptoms.

of smaller branches frequently occurs.

By midsummer, the canker surface is sunken, and as the summer progresses, some of the dead bark in the canker falls out. A callus layer forms and produces a ridge around the canker. By fall, the canker generally has many lengthwise slits, the shredded bark sometimes having the appearance of many guitar strings (Fig. 2). Larger cankers on main branches or trunks may not have this latter appearance.

This canker lacks the pattern of overlapping concentric rings so characteristic of the perennial canker and European canker diseases. In the fall, one year following infection, the fungus forms spores on the dead bark, and these

spores cause new infections. Though the canker has attained full size, the fungus can live for several years in the bark, producing spores each fall for new infections.

Infection of the fruit occurs in the fall. The rot is sometimes apparent at harvest, but often it appears after the apples have been in storage for a time. The rot is first seen as small, circular, light brown areas. As the spots enlarge they become darker in color and sunken, but remain circular in shape. The tissue beneath the spots is spongy. As the spots continue to develop, small bumps or cushions are formed in the centers. These bumps contain spores. Spots may measure  $\frac{3}{4}$  inch or more in diameter. Although the spots enlarge slowly, other rot-producing

fungi may enter the damaged tissue and cause rapid rotting.

**Control:** Partial control can be achieved with fixed copper, ziram, or Bordeaux spray (6-3-100) applied before fall rains. Follow label directions for mixing and using these fungicides. A good sanitation program should be carried out along with any spray applications.

Sanitation is extremely important when trying to control apple anthracnose. Cankered branches should be removed as soon as they are noticed. Do not wait until the dormant season to do this type of pruning. Cankers on large branches should be cut out during dry weather and treated with one of the registered fungicides listed above.

By Roy Davidson, Jr., former Agricultural Research Technologist, and Ralph S. Byther, Extension Plant Pathologist, WSU Puyallup, Puyallup, WA.

**Warning.** Use pesticides with care. Apply them only to plants, animals, or sites listed on the label. When mixing and applying pesticides, follow all label precautions to protect yourself and other around you. It is a violation of the law to disregard label directions. If pesticides are spilled on skin or clothing, remove clothing and wash skin thoroughly. Store pesticides in their original containers and keep them out the the reach of children, pets, and livestock.

The law requires that pesticides be used as the label directs. Uses against pests not named on the label and low application rates are permissible exceptions. If there is any apparent conflict between label directions and the pesticide uses suggested in this publication, consult your county Extension agent.

College of Agriculture and Home Economics, Pullman, Washington

Issued by Washington State University Cooperative Extension, Larry G. James, Interim Director, and the U.S. Department of Agriculture in furtherance of the Acts of May 8 and June 30, 1914. Cooperative Extension programs and policies are consistent with federal and state laws and regulations on nondiscrimination regarding race, color, national origin, religion, gender, age, disability, and gender preference. Trade names have been used to simplify information; no endorsement is intended. Revised January 1992. B