Botryodiplodia Canker

Difficult to detect on most hardwood species

Pathogen—Botryodiplodia canker is caused by fungal species in the genus *Botryodiplodia*, including *B. hypodermia* and *B. theobromae*. Botryodiplodia is the asexual form of the fungus. The sexual states for some of the *Botryodiplodia* species are *Botryosphaeria* spp.

Hosts—Hosts of *Botryodiplodia* species in the Rocky Mountain Region include elm, oak, and sycamore. Botryodiplodia canker is one of several hardwood canker diseases.

Figure 1. Signs and symptoms of Botryodiplodia canker on an elm. *Photo: William Jacobi, Colorado State University, Bugwood.org.*

Signs and Symptoms—The signs are small, black, pimple-like fruiting bodies (pycnidia) produced on dying and dead bark at the canker margin (fig. 1). However, it is difficult to identify the pathogen by signs. Several fungi produce small, black, pimple-like fruiting bodies and occur on hardwood hosts. Microscopic examination of the spores is necessary for correct identification.

Symptoms include discolored and cracked bark (fig. 1). Outer bark may become loose. Inner bark, cambium, and sapwood turn reddish brown to dark brown. The discoloration ends at the canker margin. Cankers on trees with rough bark can be detected only after removing bark to expose dead inner bark, cambium, and sapwood. Cankers may appear sunken and may be surrounded by callus tissue.

Girdled stems and branches die. The leaves above the cankers wilt, turn yellow to brown, and die, and adventitious shoots may form below the canker.

Disease Cycle—Spores (conidia) are released during rain and are dispersed by wind, insects, pruning tools, and rain droplets. Wounded bark can be infected throughout the growing season during moist conditions but most abundantly in spring. Cankers develop at wound sites and can girdle and kill the trees. Fruiting bodies are produced on dying and dead bark at the canker margin. The fungus overwinters in the bark as mycelium or as fruiting bodies. Cankers develop quickly during dry periods and during hot summer months. Fruiting bodies can be produced yearlong but are mainly produced in the fall on dying and recently dead bark.

Impact—These diseases cause branch dieback and tree mortality. Botryodiplodia canker diseases are important diseases of hardwoods in windbreaks.

Management—Preventing wounds is the best way to minimize cankers. Cankered branches should be pruned in the winter to reduce inoculum (fungus available to initiate new infections). Severely diseased trees and branches should be removed. Pruning cuts should be made well below canker margins and pruning tools should be disinfected. Because this disease responds to water stress, management of competing vegetation, stand thinning, planting techniques that reduce drought, and selection of a tree species compatible with a site will reduce losses.

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1. Lewis, R., Jr. 1978. Influence of infection court, host vigor, and culture filtrates on canker production by Botryodiplodia theobromae conidia in sycamore. Plant Disease Reporter 62:934-937.

2. Riffle, J.W. 1981. Cankers. In: Stipes, R.J.; Campana, R.J., eds. Compendium of elm diseases. St. Paul, MN: American Phytopathological Society. 96 p.