Cankers of Hardwood Deciduous Trees

Localized areas of dead bark and underlying wood on twigs, branches and trunks are called cankers.

Cankers can be caused either by living organisms, including fungi and bacteria, or by nonliving things such as excessive low or high temperature or hail.

Many fungi that cause cankers normally inhabit the surface of the tree, gain entrance through natural or man-made wounds, and only cause disease when the tree is under stress. However, some fungi aggressively attack trees and cause cankers.

Three General Types Of Cankers

1. Annual cankers are caused by fungi not normally able to cause disease unless the tree is under environmental stress and low in vigor. Infection occurs during the host's dormant season. During the growing season, host callus tissue walls off the canker and prevents further spread. Although annual cankers do not persist, continued stress makes it likely that more cankers will form and other more serious diseases may develop. (Example: Fusarium canker)

2. Perennial cankers are seldom lethal to the tree but do weaken its structure and detract from its appearance. Wounds and branch stubs are invaded by the fungi during the tree's dormant period. The host forms callus around the infection site during the growing season but the fungus invades more tissue the following dormant period. As this interaction continues, a target-spot canker forms. (Examples: Nectria canker, Eutypella canker)

3. Diffuse cankers are elongate with little or no callus growth. The fungus invasion is so rapid, the tree tissue at the edge of the advancing fungus is killed rapidly. Branches or whole trees are girdled sometimes in a single season. These diffuse cankers often kill the tree. (Examples: Chestnut blight, Botryosphaeria canker, Phytophthora dieback, Cytospora canker)

In the nursery, deciduous woody ornamentals should be examined for cankers. Great care should be taken to prevent injury to the trunk and branches. Pruning should be done late in the dormant season without damaging the branch collar or surrounding bark. Pruning should be done while unwanted branches are small and wounds will heal quickly. Do not prune during wet weather, nor from mid-August to leaf drop. Many canker and wood decay fungi are most active during that period.

Promote moderate tree vigor so that the tree's natural resistance to disease can be expressed and wound healing can begin promptly and develop rapidly. In the nursery:

- Prevent drought and flooding.
- Provide moderate amounts of fertilizer.
- Prevent herbicide injury.
- Prevent root and trunk injury.
- Protect trees from insects and diseases that cause premature loss of leaves.

When inspecting branches and young trees for cankers, look for:

1. localized areas of roughened or cracked bark, especially around wounds and branch stubs
2. callus formation in multiple layers or in ridges
3. small pimple-like fungal spore-forming structures either in the centers or around the edges of 1 and 2 above. These fruiting structures may be red, dark brown, or black, depending upon the fungus involved.

If these occur on branches, prune them off 3–4 inches below the canker. The cankers on the main trunk of saplings indicate that the entire tree should be removed. Perennial and diffuse
Cankers do not go away. Such cankers are present for the life of the tree which shortens the tree's life considerably.

**Note that there are no chemicals that adequately control canker-causing fungi.**

Diffuse canker (*Botryosphaeria*).

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