Chapter 13

Perennial canker

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Perennial canker

Hosts

Peach, sweet cherry, apricots and plums. It is most damaging on peaches.

Time of concern

During humid or wet weather, the fungi that cause perennial canker (*Leucocytospora cincta* and *Leucocytospora leucostoma*) produce tendrils of conidia, or asexual spores, in erumpent pycnidia that form in the dead bark on cankers. Dispersed by rain splash, the spores germinate and infect dead or injured tissue, such as leaf scars below buds; weak, shaded, senescent twigs; twigs killed by brown rot; pruning wounds; broken branches; or winter injury. The fungus expands into healthy tissue from the infection site, especially when trees are not actively growing or of poor vigor. Perennial canker infections and their spread are favored by wet and rainy weather.

Symptoms, damage and pest cycle

Perennial canker symptoms show up as brown, dark brown to black areas of dead bark on the tree. Most often the cankered areas will have a dead or dying twig or branch in their center, which was the initial site of the infection. Small, zonate cankers can also form on shoots under dead buds and spurs. Typical zonate, callous ridges may form, disfiguring the branch or trunk. These develop because in spring and fall the fungus can expand into healthy bark when the tree is not actively growing, but during summer the tree grows a ring of callous around the edge of the canker, the callous ridge is again colonized in fall and spring by the canker pathogen, and the cycle repeats. Often, but not always, gum is produced by the tree in response to canker infections. Cankers destroy shoots and limbs, weaken trees and shorten the productive lifespan of the tree in the orchard.

Leucocytospora cincta and *Leucocytospora leucostoma* produce numerous, erumpent pycnidia in dead bark on cankers. Inside the pycnidia, asexual

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Dark, sunken cankers expand along the limbs, producing large amounts of amber or dark brown gum at their edges. Often, dead twigs (in photograph) or pruning stubs can be seen at the center of such cankers.

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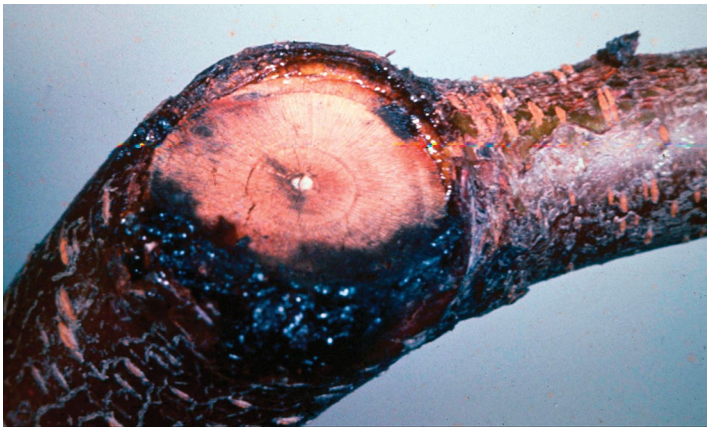
Canker margins grow callous that is colonized and killed back by the pathogen leading to their rough, zonate appearance.

spores or conidia are produced during humid and wet weather throughout the growing season. The conidia are extruded in tendrils that are splash-dispersed during rains. Spores require wet conditions to germinate and can infect only weakened, damaged or dead tissues. Pruning wounds and limb breaks that occur during wet weather can open the tree to infections, especially on newly planted trees and trees that lack vigor. The sexual spores or ascospores produced by *Leucostoma cincta* and *Leucostoma persoonii*, respectively, are sometimes found on cankers, but their role in the disease cycle is unclear.



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Gumming cankers can be seen at other common sites of infection, such as poorly healed pruning wounds.

IPM steps for beginners

The most important aspect of managing perennial canker is to select and prepare an optimal site for growing stone fruit and provide the orchard with best cultural practices. Because the pathogens can infect only weakened, damaged or dead tissues, avoid predisposing factors including winter injury, marginal sites, inadequate fertilization or prolonged periods of drought.

Do not establish young orchards near old orchards containing trees with perennial canker infections because the disease will spread to the newly planted trees, which are stressed from being transplanted and are at risk of infection due to pruning and heading cuts. Train trees to prevent narrow crotch angles between major scaffold limbs that are prone to breakage. Promote winter hardiness to prevent winter injury and apply a white latex paint to protect tree trunk and lower scaffolds from southwest injury during winter. Protect trees from damage by brown rot twig infections, oriental fruit moth terminal feeding, peach tree borers and rodent injury, all of which can create weak, damaged and dead tissue prone to perennial canker infection.

Cankered branches should be pruned out. Prune dead branches at least 4 inches (10 centimeters) below the canker margin; do not leave a stub, unless pruning sweet cherries at risk of bacterial canker infections. Cankers can be surgically excised when affecting less than half the diameter of the branch. Excised cankers should remove dead bark in an oval shape with about a 1-inch (2.5 centimeters) edge of healthy bark removed past the canker margin. Always prune trees when weather is dry and no rain is in the forecast, and when trees are actively growing and able to wall off the infection—after bloom. Remove prunings from the orchard and chip or burn them because perennial canker fungi can continue producing spores in the pruned branches left on the orchard floor.