



PERENNIAL CANKER OF PEACH

The presence of gum or sap exudate on the scaffold limbs or trunks of peach trees may be caused by insect borers, by winter or mechanical injury, and by such diseases as Coryneum, and bacterial and perennial cankers.

Perennial canker, common in most Illinois orchards, occurs throughout the Midwest wherever peaches are grown. This disease has a variety of names, some of which are die-back, peach canker, Valsa canker, and Cytospora canker. Perennial canker is caused by two species of fungi, *Valsa leucostoma* and *Valsa cincta* (imperfect stage *Cytospora*). It is not a new disease, and much research has been done to develop adequate control measures for it.

The disease is often destructive in young orchards where it causes the premature death of trees. Older trees that are affected gradually lose productivity and longevity.

Symptoms

Cytospora fungi cause cankers to form on any aerial portion of a tree—the trunk, scaffold limbs (Figure 1), twigs (Figure 2), and fruit pedicels. These fungi are not primary invaders of peach trees and are incapable of attacking healthy peach bark. *Valsa* fungi require wounds or dead areas in the bark in order to establish themselves. Once they are established, gum is exuded at the point of infection (Figures 2 and 3). This gum, initially a light amber color, gradually turns dark brown. Beneath the gum, a small necrotic lesion is apparent. The lesion gradually enlarges, with the resulting collapse of the inner bark tissue. Older cankers are generally oval in shape (Figure 4) because the lesion develops faster vertically than horizontally. The outer bark in older cankers is generally broken and disorganized, while in new cankers it remains intact except at the points of gummosis.

The canker will continue to spread from year to year. It enlarges by repeated invasion of adjoining healthy tissue by the fungus during favorable growing periods. Each spring, growth of the host causes a callus ring to form around the canker as a defense mechanism. The number of these rings may denote the age of the canker. Continued growth of the fungus eventually girdles the affected limb, causing it to die (Figure 4).



Figure 1. Perennial canker infecting a peach trunk and scaffold limbs.

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In addition to cankers, *Cytospora* also causes a “die back” symptom on twigs in the spring. Affected twigs die back from a light yellowish brown, gum-encrusted twig canker (Figure 2).

Disease Cycle

Cytospora spp. survive on cankered tissue and dead twigs, and can be found on the surface of peach trees all year long. Fruiting bodies known as pycnidia form on cankered surfaces. The pycnidia are visible macroscopically as tiny black specks embedded in the bark. Each pycnidium contains thousands of microscopic pycnidiospores, that are exuded as long gelatinous tendrils during humid weather. The spores are disseminated to injured bark tissues by rain, insects, machinery, farm workers, pruning tools, and birds. The spores germinate and start new infections when the temperature and moisture conditions are favorable. Optimum conditions for the development of *Cytospora cincta* generally occur in the spring when temperatures average 64° to 70°F (18° to 21°C). Infection by *C. leucostoma* is favored by warmer temperatures (optimum, 81°F or 28°C) that occur in the late summer or early fall. New pycnidia form 7 to 8 weeks after infection, thus completing the cycle.

Susceptibility

Perennial canker affects peaches as well as other stone fruits—plum, prune, apricot, and cherry. Peach varieties vary slightly in their susceptibility to perennial canker. The winter-hardy varieties, those that defoliate rapidly, and those that heal rapidly show the least amount of infection.

Control

1. When planting an orchard, avoid low-lying sites. Such sites have poor air and water drainage, and increase the possibility of winter injury. Destroy neglected peach, nectarine, plum, prune, apricot, and cherry trees that are nearby (within a quarter to a third of a mile). Separating new plantings from *Cytospora*-infected trees markedly reduces the number of canker infections.
2. Plant disease-free nursery stock or winter-hardy varieties. Choose winter-hardy rootstocks that induce an early hardening of the scion.
3. Fertilize in the late winter or early spring, to avoid succulent, cold-tender growth in the fall. Excessive nitrogen fertilization prevents normal maturation, therefore increasing the susceptibility to injury from sudden extreme drops in temperature in the early winter.



Figure 2. Perennial canker infecting a peach twig. The arrows point to masses of gum.



Figure 3. Initial stage of perennial canker on a scaffold limb of peach. Note the gum masses at the base of the dead twig.

4. Prune the trees annually, this allows for good circulation and eliminates the necessity of making major cuts. The open center system is suggested for peaches, nectarines, and Japanese-type and hybrid plums; the modified-leader or open-center system is suggested for apricots.

Prune during the period from late winter until just after bloom. Remove narrow-angle crotches, all weak and dead wood and limbs, and all cankered branches that can be spared. Cut at least 4 inches (10 cm) below a canker. Make the pruning cuts close, otherwise the stubs will not heal properly. Paint major pruning cuts (those greater than 2 inches or 5 cm in diameter) with a wound dressing.

Clean out cankers that occur on the large limbs and trunk. Remove infected tissue with a chisel or knife. Disinfect the blade by dipping it in 70 percent alcohol or in a 25 percent chlorine bleach solution before cutting into healthy tissue. Paint the cleaned out area with a wound dressing. Limbs containing large cankers (limbs more than half girdled) should be removed from the orchard and destroyed.



5. Avoid mechanical injury to tree trunks during mowing and when other cultural practices are being followed. Use a sod cover to avoid root injury that occurs with cultivation and to prevent erosion. Use chemical weed control around the trunks. Apply a sun-reflective paint to the south and southwest sides of tree trunks. Use a latex-type, white house paint diluted with equal parts of water. Dress any wounds with a tree paint.
6. Control insects and other diseases. Tree borers and the Oriental fruit moth produce wounds and disseminate spores. It is particularly important to control the lesser peach tree borer. Control brown rot and remove rotted fruit. Employ good protective fungicide programs such as those outlined in Illinois Commercial Tree Fruit Spray Guide. Control peach leaf curl. Spray dilute concentrations!

Figure 4. An older canker showing girdling and callus growth.