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Problem: Perennial Canker of Peach - *Valsa* (*Cytospora*) *leucostoma* and *V. cinta*

Host Plants: Peach, apricot, plum, nectarine and sweet cherry

Description:
Virtually every peach orchard in the state has some Cytospora canker present. The disease may result in a gradual tree decline through twig and branch mortality, or it may cause a rapid death of the whole tree.

Cytospora infections commonly occur at leaf scars, mechanical injuries, pruning cuts, or buds injured by cold temperatures. On vigorous trees, fungal colonization is restricted to injured tissue and invasion of healthy, surrounding tissue does not occur. However, on stressed trees, the fungus continues to colonize and kill bark tissue on the twig. This results in the formation of sunken cankers on the twig. Rapid invasion by the fungus can result in girdling of the twig and death of plant parts beyond the canker margin.

Diseased sapwood beneath the canker turns reddish-brown. Small, pinpoint fruiting structures (pycnidia) of the fungus form in the dead bark. During humid weather these structures exude orange spores in thin, gelatinous tendrils called cirrhi. These spore masses are readily visible with a 10X hand lens.

Canker development may progress down the twigs into scaffold limbs where large, diffuse cankers are formed. Cankers often exhibit extensive gummosis, but this is not necessarily diagnostic of the disease, since other diseases and environmental factors may cause bleeding. Canker formation on scaffold branches inhibits movement of nutrients and water which results in wilting and dieback of twigs on that branch. Canker development on the trunk can cause rapid death of the entire tree.
The fungus inhabits the non-living bark and dead peach wood in all orchards. It typically does not attack healthy peach tissue unless that tissue is already weakened by some other factor. Spores of the fungus are produced on dead wood and bark and are splashed or carried in aerosols to newly dead, dying, or damaged peach tissues. As long as the surrounding peach tissue is healthy and vigorous, no canker formation will result. Unfortunately, the fungus is aggressive enough to colonize peach tissue which is stressed in some manner.

The particular stresses associated with Cytospora canker are cold stress, drought stress, and nutrient deficiency. -- all of which occur in Kansas orchards. Additional stresses, such as root damage from nematodes and other root diseases, may also be involved in vigor reduction. Based upon work with this disease and related diseases of other woody plants, if peach trees are kept at optimal vigor, the Cytospora fungus should not grow into and kill the living, vigorous callus formed in the wound-healing process.

The precise periods during which fungal infection occurs in Kansas is not known, although it has been generally assumed that a major infection period occurs during the early and middle dormant periods (November through December). Nevertheless, some infection also may occur in late winter or early spring. Spores are produced and released from fruiting structures during rainy periods throughout the year.

Recommendations:
The only effective means of controlling Cytospora canker in orchards is to maintain tree vigor. Several cultural practices can be implemented to maintain optimal growing conditions:

1. Plant trees in well-drained soils with good air circulation. Avoid planting in frost pockets or on poorly drained soils.

2. Remove dead branches or dying trees from the orchards; these may serve as a source of inoculum. Avoid planting new peach trees adjacent to cankered ones.

3. Disking in the orchard damages feeder roots and predisposes trees to perennial canker. Keep the area between rows covered with grass. The area beneath the tree drip line should be kept free of weeds and grasses. Recent research indicates that organic mulches (straw or composted bark) placed beneath the tree reduces cold temperature and moisture stresses to the roots.

4. Avoid all unnecessary mechanical injuries to trees.

5. Delay pruning until trees begin to grow in the spring (blossom) and be sure to prune properly. Do not leave branch stubs or cut into the main stem; leave the branch collar intact. Do not prune in November and avoid weak-angled crotches.

6. Maintain peach nutrition through fertilization. Promote early hardening of trees through proper timing of fertilizer applications; do not fertilize in late summer.

7. Irrigation of trees is essential to maintain vigor.

References:
1. Peach Canker, Ohio State University Extension, Ohioline PLPATH-FRU-25

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