



Crown Canker of Dogwood: *Phytophthora cactorum*

Introduction

Crown Canker, also known as Collar Rot of dogwood is caused by the pathogen *Phytophthora cactorum*. The disease causes injury to flowering dogwood (*Cornus florida*) and may kill the affected tree or weaken the tree and make it more susceptible to attack by other organisms.

Symptoms and Signs

The first symptom that may be noticed is usually a reduced number and size of leaves produced. The affected dogwood may generally have an unhealthy look. The leaf color is lighter than normal during the summer and in late summer the leaves turn prematurely yellow or red and drop early. Affected trees in the later stages of the disease may produce an abnormally large number of flowers and fruits. During dry times in summer, diseased dogwoods are much more likely than healthy trees to have large numbers of leaves curl or shrivel or to show wilting of all foliage. Affected dogwoods exhibit gradual dieback of twigs and branches, sometimes starting only on one side of the tree, but eventually ending in death of the entire tree.

The most outstanding symptom and the real cause for death of the top of the tree is the slowly developing canker on the lower trunk near the ground line, referred to as the "crown" region of the tree. The pathogen kills the bark just above the ground level. Often at an early stage of canker development, infected areas of bark will ooze dark-colored fluid. At this time, infections can sometimes be found by gently removing thin layers of bark in the affected

area. If the disease is present, the inner bark, cambium, and sapwood show discoloration.

Over a period of months to years, this killed area of bark becomes sunken, dries, and falls away leaving the wood exposed. The canker is then visible and its seasonal progress is not hard to see. As the tree becomes weakened, it is more susceptible to attack by the dogwood borer and is more severely affected by short, droughty periods during the summer.

Disease Cycle

Infection usually occurs through injuries caused during transplanting, or from lawn care (mowing injuries), cultivation, etc.

Management Strategies

Since infection usually occurs through injuries, the first priority is to avoid wounding the crown region of the tree. Any break in the bark is also an invitation to the dogwood borer moth to deposit eggs, so care should be exercised to prevent trunk injuries in order to avoid borer infestations as well. Growing dogwoods in slightly acid, well-drained soil with a high organic matter content, and occasionally fertilizing in the root zone will also help maintain tree vigor. Mulch properly applied around the base of the tree may also help avoid damage to the trunk from mowing etc. Be certain mulch is not in direct contact with the bark however as that may create a moist condition that promotes bark death and disease development.

It is too late to control crown canker after the fungus has invaded a large part of the tree base. However, if the infection is confined to a relatively small area, it may be possible to stop the spread of the disease at the root collar or trunk base by excising the canker. This simple surgical operation can be done by removing all the discolored bark and sapwood in the canker area and, in addition, removing 5 cm of healthy bark and sapwood around the canker with a sturdy, sharp knife.

This freshly wounded area may be susceptible to new infections, so to provide a physical layer of protection, paint the excised area with orange shellac. Then paint the area of exposed heartwood with a good asphalt-base wound paint.

If a dogwood tree dies of crown canker, do not plant another dogwood in the same spot. Azaleas and rhododendrons are susceptible to a root and crown rot caused by the same pathogen, and apple, maple, and horse-chestnut trees are known to get collar rot or bleeding canker disease from this pathogen as well. Choose woody species other than these if you desire to plant another tree or shrub where the dogwood was.

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