

# RESEARCH UPDATE

## Avoid crown rot by using mulch properly

by George Scott, pres., symbiosis

Landscapers using chipped landscape bark should realize that mismanagement of organic mulch can cause crown rot.

This condition causes the crown region of a plant to decay and eventually kills many ornamental trees and shrubs. The astute landscape manager however, can prevent it from developing.

A rot is defined as any organism that causes the disintegration of living cells of plants in large numbers. "Crown rot" is a term commonly used to describe the decay of cambium tissue in the crown of a tree or shrub.

With several woody ornamental shrubs, the symptoms of crown rot appear as chlorosis, low vigor, wilting and death of individual limbs, or death of the complete plant. These symptoms are likely to appear after excessive mulch, organic debris or soil collects around the plant crown. Investigation may reveal swelling, splitting and the decay of plant tissue in the crown area.

The conditions that favor crown rot

can exist for several months before an affected shrub will show any symptoms of distress. Crown rot symptoms can appear year-round, but will generally show up in middle to late summer when the demand for water to the leaves is highest. Even though water may be abundant in the soil, water movement from roots to leaves is restricted because the rotting of plant tissue (phloem and cambium, specifically) restricts water flow and prevents the translocation of sugars to the roots.

### Restricted water flow

During hot weather the demand for water in the leaves may exceed what is able to move up through the declining roots and crown. As a result, wilting and death occur. Once a stem has been girdled by crown rot, that particular limb will die.

High humidity and temperature around the plant's crown also make an ideal environment for crown rot's development. In addition, adding

landscape bark and other organic mulches to the landscape tend to add to the build-up of mulch within the plant crown, causing it to rot.

Mulching alone will not create the problem. Often it is the indiscriminate and careless placement of mulch that is to blame. Shrubs located on slopes are easily piled deep in mulch. Rain, overhead sprinkling and foot traffic tend to push mulch down a slope where it piles behind a shrub, slowly burying its crown.

Sometimes a shrub will bury its own crown in fallen leaves or needles, aiding its own death. Heather, azalea and juniper often do this. Also, falling leaves of a nearby tree or shrub may collect around smaller shrubs, creating conditions ideal for crown rot.

Care should also be taken to avoid water pools around plant crowns during irrigation.

### Soil levels

Shrubs should be inspected regularly to free them of these conditions. Ideally, the same soil level maintained in the greenhouse or nursery should be maintained on the landscape. Shrubs should not be planted or mulched deeper than their original soil level. When putting down new landscape bark or mulch around shrubs, avoid placing it under or inside the plant canopy.

The effects of improper planting and deep mulch is the primary cause of death to ornamental shrubs on residential landscapes.

Clean out and brush away organic debris after it collects within a shrub canopy. For most shrubs this is an easy task. Lower limbs can be gently pushed aside and the mulch pulled away from the crown. In older, well-established shrub beds (junipers, for example) this isn't as easy as it sounds.

If crown rot conditions exist on a landscape it may or may not be too late to save some shrubs. Pull excess mulch and leaf mold away from plant crowns and prune out dead limbs and twigs. This will improve air circulation inside the plant canopy and help dry rotted tissue.

Some shrubs appear to be more susceptible to crown rot than others. These include azalea, euonymus, heather, juniper and rhododendron. Crown rot in ornamental shrubs is both caused and prevented by a simple cultural practice: mulching. By making periodic checks of the area and properly placing mulch, you will maintain healthy, long-lived shrubs. **LM**

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