

A2517

# Mountain ash disorder: Sunscald-fungal canker complex

M. F. HEIMANN and G. L. WORF

Physical damage to the trunk—caused by sunscald or even lawn mower damage—opens the way for fungal infection. This combination is known as sunscald-fungal canker complex. It is probably the most common cause of early kill of mountain ash in Wisconsin and apparently occurs throughout the state.

## Symptoms and effects

Affected trees typically show a yellowing or browning of the leaves in a part of the crown or on individual branches. Usually this is on one side only—often the southwest side of the tree. The browning can occur anywhere, however, including the center of the crown. No striking external coloration of the bark is evident on the affected branches. The condition may spread rather rapidly

through the tree, or decline may take place slowly. The trunk and major branches of the tree should be examined for evidence of physical injury, such as bark cracking from sunscald or lawn mower damage. Careful examination of the tissue adjacent to such injuries may show that the cambium has been killed. Inner bark is then brown rather than green. This condition usually spreads slowly through and around the trunk, resulting in the strangulation of some or all of the crown of the tree. Leaves on branches affected by this strangulation gradually become yellow, brown, or red.



This tree has declined progressively over a 3-year period.



Physical injury is obvious, but close observation of the trunk also reveals cankered dead areas that are gradually expanding. The arrows point to the margin between healthy and dead cambium.

The tree should be examined carefully for such symptoms, because it is often confused with bacterial fire blight. Field examination of the entire tree is necessary for positive confirmation. The mountain ash is not generally a long-lived tree, and overall symptoms of aging are frequent in older specimens.

Laboratory examination of affected branches is of limited value, except to confirm that sunscald may be the problem.

### Cause

Mountain ash is one of many thin-barked trees that are subject to sunscald—an injury that generally occurs in late winter or very early spring. At this time of year bright sunshine causes the temperature of the west or south-facing bark to rise substantially above that of the surrounding air. When the sun sets, the bark temperature drops suddenly, causing a shrinking of the bark and sometimes a sharp, vertical crack on the exposed side of the tree. Resulting wounds are then invaded by one or more species of fungi that appear to be responsible

for continued expansion of the cambial kill. Exact pathological relationships have not been determined.

Lawn mower wounds or similar injuries may also induce canker development.

### Control

The most effective measures are those taken to prevent sunscald or other wounds to the trunk and major branches. If the bark remains intact and healthy, the fungus is unable to penetrate to create cankers. Wrapping the bark prior to winter with sisal kraft paper (or other appropriate material) shades the bark and thus reduces the chance of sunscald. Do not overprune the tree, since even bare branches provide some protection from the sun. Where appropriate, leave branches close to the ground to reduce stem exposure. Another way to protect the trunk from sunscald is by planting evergreen shrubs, such as yews or medium-sized junipers, around the base of the tree to provide year-round shade.

Young trees should be staked so that south or west winds will not cause them to lean and thus expose more bark to a direct angle of the sun. Remove stakes after the first year.

Wounds can be invaded in any season, including warm periods in winter. Unfortunately, no treatment is known to cure advanced infections. If the infection has not progressed very far, it may be possible to chisel out the dead cambial area ahead of the infection site, and hope that reinfection does not occur.



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SR-09-97