

2014 Dane County UW-Extension
Winter Seminar Series

Canker Diseases

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Canker Diseases What is a Canker?

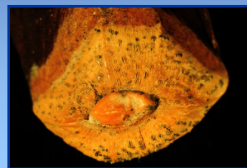
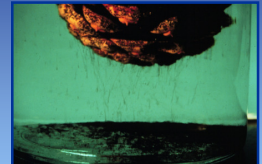
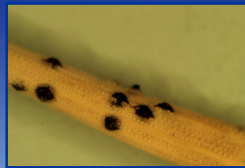
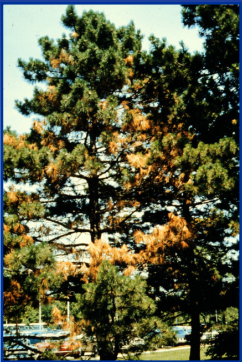
- A localized, typically sunken, area on a woody plant part such as a branch, trunk or stem.

Canker Diseases Diplodia Shoot Blight and Canker

- Pathogen: Diplodia pinea
(Sphaeropsis sapinea)
- Hosts (major)
 - Pines: Austrian
 - Other pines: red, jack, Scots, mugo
- Hosts (minor)
 - Other conifers: cedars, cypresses, firs, spruces, junipers, yews

Canker Diseases Diplodia Shoot Blight and Canker

- Favorable environment
 - Long periods of needle wetness
 - Drought



Canker Diseases *Diplodia* Shoot Blight and Canker

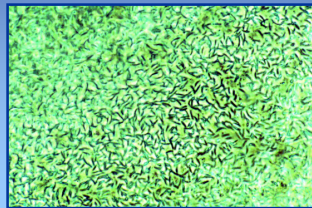
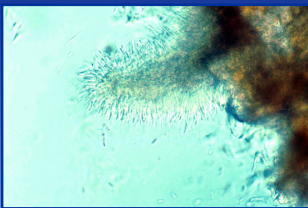
- **Control**
 - DO NOT plant Austrian pines
 - Prevent tree stress, particularly water stress
 - Thin branches to increase airflow
 - Prune diseased branches
 - Disinfect tools between pruning cuts
 - Remove infected cones

Canker Diseases *Diplodia* Shoot Blight and Canker

- **Control**
 - Use fungicides to prevent infections
 - Thiophanate-methyl, chlorothalonil
 - Bud break through shoot elongation
 - 14 day application interval

Canker Diseases *Cytospora* Canker

- **Pathogen:** *Leucocytospora kunzei*
(*Cytospora* spp.)
- **Hosts**
 - Colorado blue spruce
 - Norway spruces
 - Other spruces
 - Douglas fir
 - Many other conifers



Canker Diseases *Cytospora* Canker

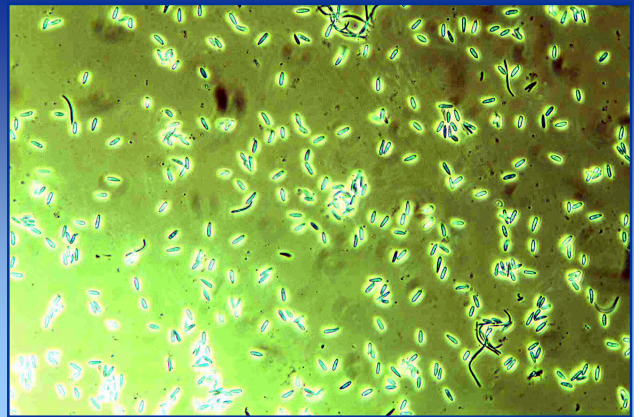
- **Control**
 - DO NOT plant Colorado blue spruce
 - DO NOT crowd trees when planting
 - Thin branches to increase airflow
 - Prevent tree stress
 - Prune diseased branches
 - Disinfect tools between pruning cuts
 - DO NOT use fungicides

Canker Diseases *Phomopsis* Tip Blight

- **Pathogens**
 - *Phomopsis juniperovora*
 - *Phomopsis* spp.
- **Hosts**
 - Junipers
 - Other conifers

Canker Diseases *Phomopsis* Tip Blight

- **Favorable environment**
 - Cool, wet conditions
 - Factors stimulating excessive host growth



Canker Diseases *Phomopsis* Tip Blight

- **Control**
 - Use resistant varieties
(<http://www.plantpath.ksu.edu/doc753.ashx>)
 - DO NOT crowd trees/shrubs when planting
 - Prevent tree/shrub stress
 - Avoid over-fertilization (particularly N)
 - Prune diseased branches
 - Avoid excessive pruning
 - Disinfect tools between pruning cuts

Canker Diseases *Phomopsis* Tip Blight

- **Control**
 - Use fungicides to prevent infections
 - mancozeb, copper-containing fungicides, thiophanate methyl
 - Bud break through period of rapid growth
 - 7-21 day application interval

Canker Diseases *Nectria* Canker

- Pathogen: *Nectria* spp.
- Hosts
 - Many woody ornamentals
 - Honey locust
 - Maple
- Favorable environment
 - Wounding
 - Wet weather conditions



Canker Diseases *Nectria* Canker

- Control
 - Choose well-adapted trees and shrubs
 - Water and fertilize trees and shrubs properly
 - Reduce environmental stresses/injuries
 - Prune properly when maintenance pruning
 - Prune infected branches
 - Disinfect tools between pruning cuts
 - DO NOT use fungicides

Canker Diseases *Thyronectria* Canker

- Cause: *Thyronectria austro-americana*
- Host: Honey locust



Canker Diseases *Thyronectria Canker*

- **Control:**
 - Reduce tree stress
 - Water
 - Heat
 - Nutrient
 - Prune infected branches
 - Disinfest tools between pruning cuts
 - DO NOT use fungicide for control

Canker Diseases *Golden Canker*

- **Cause:** *Cryptodiaporthe corni*
- **Hosts:** *Pagoda dogwood*
- **Environmental trigger**
 - Water stress
 - Heat stress



Canker Diseases *Golden Canker*

- **Control**
 - Plant trees in the proper site
 - Water and fertilize appropriately
 - Mulch adequately
 - Prune diseased branches
 - Disinfest tools between pruning cuts
 - DO NOT use fungicides for control

Canker Diseases *Fire Blight*

- **Cause:** *Erwinia amylovora*
- **Hosts**
 - Many rosaceous plants
 - Apple, crabapple, pear, mountain ash, cotoneaster
- **Environmental trigger:** *Hail*



Canker Diseases Fire Blight

- **Control**
 - Plant resistant varieties where available
 - Prune diseased branches
 - Disinfect tools between pruning cuts
 - DO NOT over-fertilize with nitrogen
 - Use bactericides to prevent infections (?)
 - Copper-containing fungicides, antibiotics
 - During flowering
 - Applications every 7-14 days (3-4 days)

Canker Diseases Sunscald/Frost Crack

- **Causes**
 - Alternating thawing and freezing
 - Root injury
 - Improper planting
- **Affected plants**
 - Most deciduous trees
(but particularly thin-barked species)
 - Norway maple
 - Ash

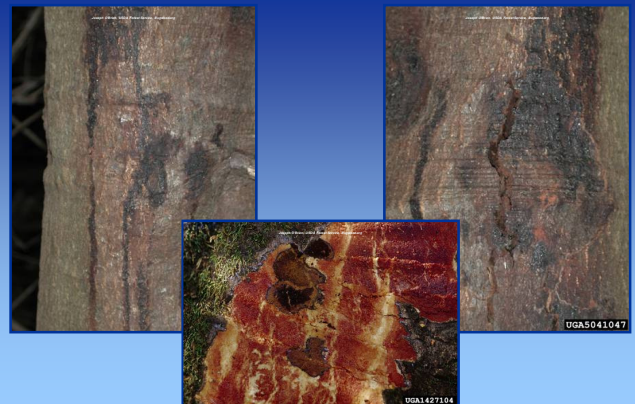


Canker Diseases Sunscald/Frost Crack

- **Control**
 - Use trees and shrubs that are well adapted to your area
 - Plant sensitive trees in protected locations
 - Minimize root injury when digging trees
 - Replant trees and shrubs properly
 - Use tree wraps judiciously
 - Wrap trees first two to three winters
 - Remove wrap promptly in spring

Canker Diseases Ramorum Blight (Sudden Oak Death)

- **Cause:** *Phytophthora ramorum*
- **Hosts**
 - coast live oak, California black oak, Shreve oak, tanoak, big leaf maple, rhododendron, huckleberry, California bay laurel, madrone, manzanita, huckleberry, California honeysuckle, toyon, California buckeye, California coffeeberry, arrow wood, *Viburnum* spp., and many others
 - Northern red oak, northern pin oak (by inoculation)
 - Host list continues to expand





Canker Diseases ***Ramorum Blight (Sudden Oak Death)***

- **Control**
 - Buy woody ornamentals from a reputable source
 - Inspect plants prior to purchase for symptoms of sudden oak death
 - Keep new plants isolated from established plants

Canker Diseases ***Ramorum Blight (Sudden Oak Death)***

- **Control**
 - Contact the PDDC if you believe you have found this disease!
 - Remove and destroy infected plants (with the assistance of WI DATCP and USDA APHIS)

Canker Diseases ***Thousand Cankers Disease***

- **Cause:** *Geosmithia morbida*
- **Hosts**
 - Black walnut
 - Other walnuts
- **Transmission:** *Walnut twig beetle* (*Pityophthorus juglandis*)





Canker Diseases Thousand Cankers Disease

- *Control*

- *DO NOT transport walnut wood/products from areas known to have the disease*
- *Remove and destroy affected trees*
- *No effective fungicide strategies known*
- *No effective insecticide strategies known*
- *Contact the PDDC if you believe you have found this disease!*

Canker Diseases Where to Go for Help

*Plant Disease Diagnostics Clinic
Department of Plant Pathology
University of Wisconsin-Madison
1630 Linden Drive
Madison, WI 53706-1598
(608) 262-2863
pddc@plantpath.wisc.edu
<http://pddc.wisc.edu>
Follow the clinic on Twitter @UWPDDC*