

Juneau County Seminar

Top Ten Tree and Shrub Diseases

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Top Ten Tree and Shrub Diseases Boxwood Blight

- Cause
 - *Calonectria pseudonaviculata*
 - *Cylindrocladium pseudonaviculatum* (*Cylindrocladium buxicola*)
- Hosts
 - Boxwood
 - Pachysandra
- Favorable Environment: Cool, wet weather



Top Ten Tree and Shrub Diseases Boxwood Blight

- Control
 - Be cautious about holiday wreaths
 - Use shrubs other than boxwood
 - Buy locally produced boxwood
 - Buy from a reputable supplier
 - Avoid symptomatic plants

Top Ten Tree and Shrub Diseases Boxwood Blight

- Control
 - Grow resistant varieties
 - Hybrid boxwood 'Green Gem'
 - Common boxwood 'Katerberg' North Star®
 - Korean littleleaf boxwood
 - 'Eseles' Wedding Ring®
 - 'Franklin's Gem'
 - 'Winter Gem'
 - 'Wintergreen'

Top Ten Tree and Shrub Diseases Boxwood Blight

- Control
 - Keep new plants isolated
 - DO NOT replant in an area where boxwood blight has been a problem
 - Physically separate boxwood plantings
 - Space plants far apart
 - DO NOT overhead water
 - Prune out diseased branches

Top Ten Tree and Shrub Diseases Boxwood Blight

- **Control**
 - Decontaminate pruning tools and other items (70% alcohol, 10% bleach, disinfectants)
 - Remove and destroy infected plants
 - Burn (where allowed)
 - Deep bury (two feet)/Double bag and landfill
 - DO NOT compost

Top Ten Tree and Shrub Diseases Boxwood Blight

- **Control**
 - Use fungicides to prevent infections
 - Chlorothalonil (alone or with propiconazole or thiophanate-methyl), fludioxonil, metconazole, tebuconazole
 - 7 day application intervals
 - Alternate active ingredients (FRAC codes)
 - Contact the PDDC if you believe you have found boxwood blight!

Top Ten Tree and Shrub Diseases Rhizosphaera Needle Cast

- **Pathogens:** *Rhizosphaera kalkhoffii*
Rhizosphaera spp.
- **Look-Alike:** Stigmata Needle Cast (*Stigmata* spp.)
- **Hosts (major)**
 - Colorado blue spruce
 - Other spruces: Black, Engelmann, Serbian, Sitka, white (Black Hills)

Top Ten Tree and Shrub Diseases Rhizosphaera Needle Cast

- **Hosts (minor)**
 - Pines: Austrian, mugo, eastern white pine
 - Douglas fir
 - Hemlock
 - Balsam fir and other firs
- **Favorable environment:**
 - Wet weather
 - High humidity



Top Ten Tree and Shrub Diseases Rhizosphaera Needle Cast

- **Control**
 - DO NOT plant Colorado blue spruce
 - DO NOT crowd trees when planting
 - Plant dwarf spruce varieties
 - Thin healthy branches to increase airflow
 - Prevent tree stress
 - Prune diseased branches

Top Ten Tree and Shrub Diseases Rhizosphaera Needle Cast

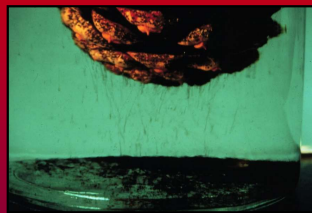
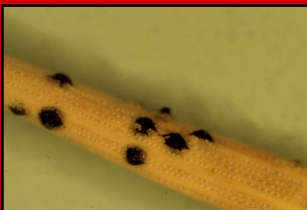
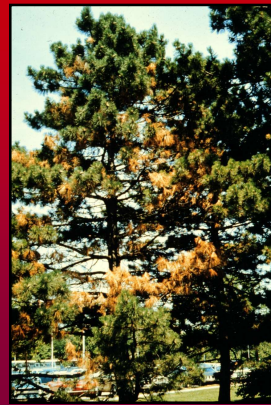
- Control
 - Decontaminate pruning tools (70% alcohol, disinfectants, 10% bleach)
 - Use fungicides to prevent infections
 - Copper, chlorothalonil
 - Alternate active ingredients (FRAC Codes)
 - Start applications at bud break
 - Apply at 3-4 week intervals under favorable conditions

Top Ten Tree and Shrub Diseases Diplodia (Sphaeropsis) Tip Blight

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

Top Ten Tree and Shrub Diseases Diplodia (Sphaeropsis) Tip Blight

- Favorable environment
 - Wet weather (for infection)
 - Drought (for extensive colonization)



Top Ten Tree and Shrub Diseases Diplodia (Sphaeropsis) Tip Blight

- Control
 - DO NOT plant Austrian pines
 - Prevent tree stress, particularly water stress
 - Thin branches to increase airflow
 - Prune diseased branches
 - Decontaminate pruning tools (70% alcohol, disinfectants, 10% bleach)
 - Remove infected cones (?)

Top Ten Tree and Shrub Diseases Diplodia (Sphaeropsis) Tip Blight

- Control
 - Use fungicides to prevent infections
 - Thiophanate-methyl, chlorothalonil
 - Alternate active ingredients (FRAC Codes)
 - Apply from bud break through shoot elongation
 - Apply at 14 day intervals

Top Ten Tree and Shrub Diseases Gymnosporangium Rusts

- Pathogens: *Gymnosporangium* spp.
 - *Gymnosporangium juniperi-virginianae* (Cedar-apple rust)
 - *Gymnosporangium globosum* (Cedar-hawthorn rust)
 - *Gymnosporangium clavipes* (Cedar-quince rust)

Top Ten Tree and Shrub Diseases Gymnosporangium Rusts

- Hosts
 - Junipers
 - Rosaceous plants
 - Apple, crabapple
 - Hawthorn
 - Quince
 - Pear
 - Serviceberry
- Favorable environment: Wet weather



Top Ten Tree and Shrub Diseases Gymnosporangium Rusts

- Control
 - Grow only junipers or rosaceous hosts
 - Use resistant cultivars/varieties
 - “Juniper Diseases” (<https://store.extension.iastate.edu/Product/Juniper-Diseases>)
 - “Home Fruit Cultivars for Northern Wisconsin” (<https://learningstore.uwex.edu/>)
 - “Home Fruit Cultivars for Southern Wisconsin” (<https://learningstore.uwex.edu/>)

Top Ten Tree and Shrub Diseases Gymnosporangium Rusts

- Control
 - Remove galls
 - Decontaminate pruning tools (70% alcohol, disinfectants, 10% bleach)
 - Destroy infected materials
 - Burn (where allowed)
 - Deep bury

Top Ten Tree and Shrub Diseases Gymnosporangium Rusts

- **Control**
 - Use fungicides to prevent infections (?)
 - Treat rosaceous hosts
 - Chlorothalonil, copper, ferbam, mancozeb, propiconazole, sulfur, and triadimefon
 - Alternate active ingredients (FRAC Codes)
 - Apply when flowers first show color, when half of flowers open, at petal fall, 7 to 10 days after petal fall, and 10 to 14 days later

Top Ten Tree and Shrub Diseases Black Knot

- **Cause:** *Apiosporina morbosa*
- **Hosts:** *Prunus* spp.
 - Plums
 - Cherries
- **Favorable environment:** Wet weather



Top Ten Tree and Shrub Diseases Black Knot

- **Control**
 - DO NOT plant infected *Prunus* stock
 - Buy black knot-resistant varieties if available
 - Accolade flowering cherry (*Prunus* 'Accolade')
 - Sargent's cherry (*Prunus sargentii*)
 - Amur chokecherry (*Prunus maackii*)
 - Remove volunteer plums/cherries
 - Prune diseased branches

Top Ten Tree and Shrub Diseases Black Knot

- **Control**
 - Decontaminate pruning tools (70% alcohol, disinfectants, 10% bleach)
 - Destroy infected materials
 - Burn (where allowed)
 - Deep bury
 - DO NOT use fungicides

Top Ten Tree and Shrub Diseases Fire Blight

- **Cause:** *Erwinia amylovora*
- **Hosts**
 - Many woody rosaceous plants
 - Apple, crabapple, pear, mountain ash, cotoneaster
- **Favorable environment**
 - Wet weather (but not too wet)
 - Hail (or other wounding)



Top Ten Tree and Shrub Diseases Fire Blight

- **Control**
 - Plant resistant varieties
 - “Home Fruit Cultivars for Northern Wisconsin” (<https://learningstore.uwex.edu/>)
 - “Home Fruit Cultivars for Southern Wisconsin” (<https://learningstore.uwex.edu/>)
 - “Top Ornamental Crabapples for Wisconsin” (<https://pddc.wisc.edu/fact-sheet-listing-all/>)
 - Prune diseased branches

Top Ten Tree and Shrub Diseases Fire Blight

- **Control**
 - Decontaminate pruning tools (70% alcohol, disinfectants, 10% bleach)
 - Destroy infected materials
 - Burn (where allowed)
 - Deep bury
 - DO NOT over-fertilize with nitrogen

Top Ten Tree and Shrub Diseases Fire Blight

- **Control**
 - Use bactericides to prevent infections (?)
 - Copper, streptomycin
 - Apply during flowering
 - Apply every 7-14 days (3-4 days)

Top Ten Tree and Shrub Diseases Golden Canker

- **Cause:** *Cryptodiaporthe corni*
- **Host:** Pagoda dogwood
- **Favorable environment**
 - Water stress
 - Heat stress



Top Ten Tree and Shrub Diseases Golden Canker

- **Control**
 - Prune diseased branches
 - Decontaminate pruning tools (70% alcohol, disinfectants, 10% bleach)
 - Destroy infected materials
 - Burn (where allowed)
 - Deep bury

Top Ten Tree and Shrub Diseases Golden Canker

- **Control**
 - Reduce plant stress
 - Consider tree placement
 - Water adequately
 - Fertilize appropriately
 - **DO NOT** use fungicides for control

Top Ten Tree and Shrub Diseases Verticillium Wilt

- **Causes**
 - *Verticillium dahliae*
 - *Verticillium albo-atrum*
 - Other *Verticillium* spp.
 - New *Verticillium* spp.

Top Ten Tree and Shrub Diseases Verticillium Wilt

- **Hosts**
 - Many woody ornamentals
 - Common: Maple, ash, redbud, smokebush
 - Newer: Seven son flower, wafer-ash, buttonbush
 - Many vegetables
 - Tomato, potato, pepper, EGGPLANT, cucurbits
 - Many herbaceous plants
 - Common: Purple coneflower, blazing star
 - New: Vervain ('Quartz White')

Top Ten Tree and Shrub Diseases Verticillium Wilt

- **Favorable environment**
 - Cool, wet weather (for infection)
 - Hot, dry weather (for symptom development)





Top Ten Tree and Shrub Diseases Verticillium Wilt

- **Control**
 - Avoid *Verticillium*-infested areas
 - Pretest soils/mulches/composts for the presence of *Verticillium*
 - Fumigate heavily infested soils
 - Keep broad-leaf weeds under control
 - Clean up leaf litter
 - Avoid municipal mulches

Top Ten Tree and Shrub Diseases Verticillium Wilt

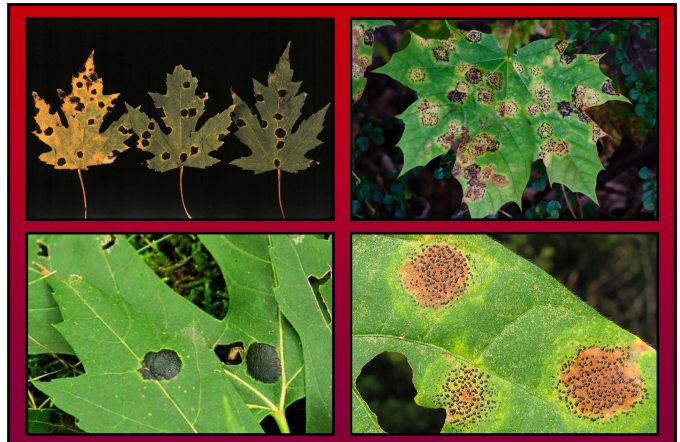
- **Control**
 - Use immune/resistant plants
 - CONIFERS: Pines, spruces, firs, junipers
 - DECIDUOUS TREES/SHRUBS: Beech, birch, ginkgo, hackberry, hawthorn, hickory, honey locust, mountain ash, white oak, bur oak, poplar, serviceberry, sycamore, willow
 - Prevent stress
 - Prune diseased (wilted) areas

Top Ten Tree and Shrub Diseases Verticillium Wilt

- **Control**
 - Decontaminate pruning tools (70% alcohol, disinfectants, 10% bleach)
 - Make plants comfortable until they die
 - Remove and destroy diseased plants/leaves
 - Burn (where allowed)
 - Hot compost (?)
 - DO NOT use fungicides

Top Ten Tree and Shrub Diseases Tar Spot

- **Causes**
 - *Rhytisma americanum*
 - *Rhytisma acerinum*
- **Hosts:** Maples
- **Favorable environment:** Cool, wet weather



Top Ten Tree and Shrub Diseases Tar Spot

- **Control**
 - DO NOT panic
 - Remove/destroy diseased leaves
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - Use fungicides to prevent infections
 - Copper
 - Apply at bud break, 1/2 and full leaf expansion

Top Ten Tree and Shrub Diseases Powdery Mildews

- **Causes**
 - *Erysiphe* spp.
 - *Uncinula* spp.
 - *Phyllactinia* spp.
 - *Blumeria* spp.
 - *Oidium* spp.
 - *Microsphaera* spp.
 - *Sphaerotheca* spp.
 - *Podosphaera* spp.
 - *Brasiliomyces* spp.
 - *Ovulariopsis* spp.

Top Ten Tree and Shrub Diseases Powdery Mildews

- **Hosts**
 - Virtually everything
 - Not conifers
- **Favorable environment:** High humidity



Top Ten Tree and Shrub Diseases Powdery Mildews

- **Control**
 - Remove/destroy diseased leaves
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - Reduce humidity
 - Plant less densely
 - Thin canopies
 - Use resistant cultivars/varieties

Top Ten Tree and Shrub Diseases Powdery Mildews

- **Control**
 - Use fungicides to prevent infections
 - Dinocap, dithiocarbamates, myclobutanil, triadimefon, triforine, sulfur or thiophanate-methyl
 - Baking soda (1.5 Tbsp/gal) and light weight horticultural oil (3 Tbsp/gal)
 - Alternate active ingredients (FRAC codes)
 - Apply when humidity >60-70%
 - Apply at 7-14 day intervals

Top Ten Tree and Shrub 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@wisc.edu
<https://pddc.wisc.edu>**

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