

## Marathon County Seminar

### Top Ten Tree Diseases

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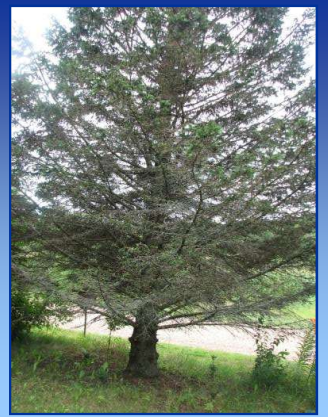


### Top Ten Tree Diseases *Rhizosphaera* Needle Cast

- Pathogen: *Rhizosphaera kalkhoffii*  
(*Rhizosphaera* spp.)
- Hosts (major)
  - Colorado blue spruce
  - Other spruces: Engelmann, black, Serbian, Sitka, white (Black Hills)

### Top Ten Tree 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 Diseases *Rhizosphaera* Needle Cast

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

### Top Ten Tree Diseases *Rhizosphaera* Needle Cast

- Control
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach
  - Destroy infected materials
    - Burn (where allowed)
    - Deep bury
    - Hot compost (needles)

### Top Ten Tree Diseases *Rhizosphaera Needle Cast*

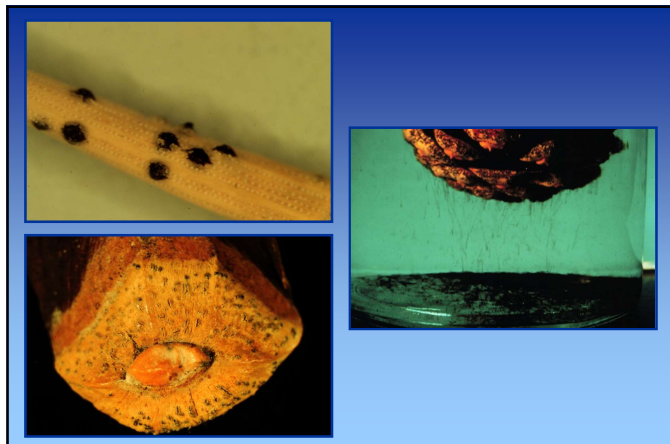
- **Control**
  - Use fungicides to prevent infections
    - Copper-containing fungicides, chlorothalonil
    - Alternate active ingredients (FRAC codes)
    - Apply starting at bud break and at 3-4 week intervals thereafter under favorable conditions

### Top Ten Tree Diseases *Diplodia (Sphaeropsis) Shoot 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 Diseases *Diplodia (Sphaeropsis) Shoot Blight*

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



### Top Ten Tree Diseases *Diplodia (Sphaeropsis) Shoot Blight*

- **Control**
  - DO NOT plant Austrian pines
  - Prevent tree stress, particularly water stress
  - Thin branches to increase airflow
  - Prune diseased branches

### Top Ten Tree Diseases *Diplodia (Sphaeropsis) Shoot Blight*

- **Control**
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach
  - Remove infected cones (?)
  - Destroy infected materials
    - Burn (where allowed)
    - Deep bury

### Top Ten Tree Diseases *Diplodia (Sphaeropsis) Shoot Blight*

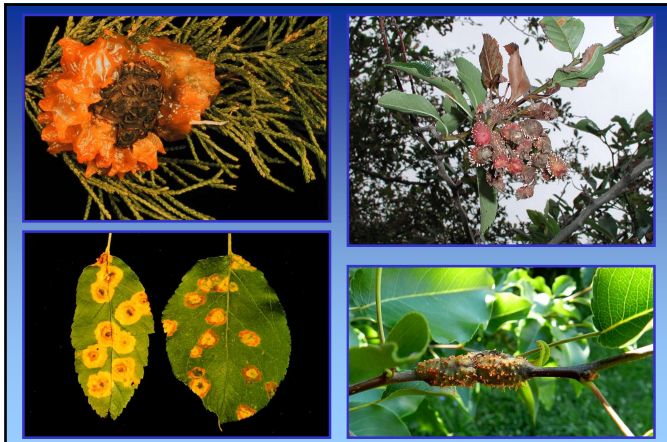
- **Control**
  - Use fungicides to prevent infections
    - Thiophanate-methyl, chlorothalonil
    - Alternate active ingredients (FRAC Codes)
    - Apply from bud break through shoot elongation
    - Apply every 14 days

### Top Ten Tree Diseases *Gymnosporangium Rusts*

- **Causes**
  - *Gymnosporangium juniperi-virginianae*  
(Cedar-apple rust)
  - *Gymnosporangium globosum*  
(Cedar-hawthorn rust)
  - *Gymnosporangium clavipes*  
(Cedar-quince rust)

### Top Ten Tree Diseases *Gymnosporangium Rusts*

- **Hosts**
  - Junipers
  - Woody rosaceous plants  
(apple, crabapple, hawthorn, quince, pear, serviceberry)
- **Favorable environment**
  - Cool to moderate temperatures
  - Wet



### Top Ten Tree Diseases *Gymnosporangium Rusts*

- **Control**
  - Grow only the juniper or rosaceous host
  - Use resistant cultivars/varieties
    - “Juniper Diseases”  
(<https://store.extension.iastate.edu/Product/Juniper-Diseases>)
  - Remove galls

### Top Ten Tree Diseases Gymnosporangium Rusts

- **Control**
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach
  - Destroy infected materials
    - Burn (where allowed)
    - Deep bury

### Top Ten Tree Diseases Gymnosporangium Rusts

- **Control**
  - Use fungicides to prevent infections
    - Ferbam, triadimefon
    - Alternate active ingredients (FRAC codes)
    - Apply at 7-21 day intervals [mid-May through mid-June (rosaceous hosts), early July through August (juniper hosts)]

### Top Ten Tree Diseases Scab (Apple and Pear)

- **Causes**
  - *Venturia inaequalis*
  - *Venturia pirina*
- **Hosts**
  - Apple/crabapple
  - Pear
  - Mountain ash
- **Favorable environment:** Cool, wet weather



### Top Ten Tree Diseases Scab (Apple and Pear)

- **Control**
  - Plant resistant varieties
    - “Growing Apples (Pears) in Wisconsin” (<https://learningstore.uwex.edu/>)
  - Remove/destroy diseased leaves
    - Burn (where allowed)
    - Deep bury
    - Hot compost
  - Thin trees to promote air flow

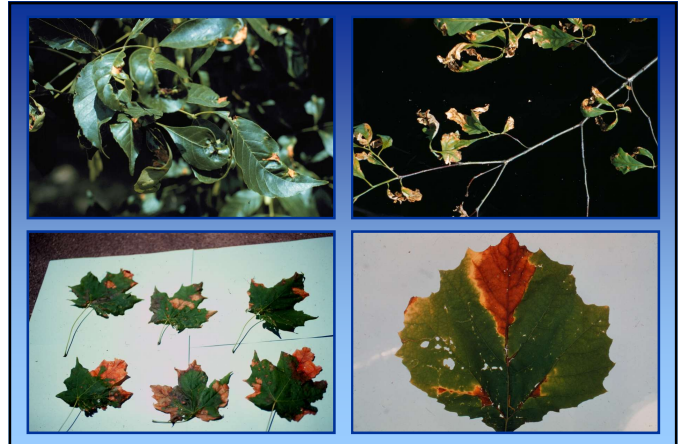
### Top Ten Tree Diseases Scab (Apple and Pear)

- **Control**
  - Use fungicides to prevent infections
    - Chlorothalonil, copper, mancozeb, myclobutanil, propiconazole, thiophanate-methyl, sulfur
    - Alternate active ingredients (FRAC codes)
    - Apply from bud break through the end of favorable weather
    - Apply at 7-14 day intervals



### Top Ten Tree Diseases Anthracnose

- **Causes**
  - Gloeosporium spp.    – Discula spp.
  - Colletotrichum spp.    – Many other fungi
- **Hosts**
  - Any deciduous tree
  - Ash, maple, oak
  - Sycamore
- **Favorable environment:** Cool, wet weather



### Top Ten Tree Diseases Anthracnose

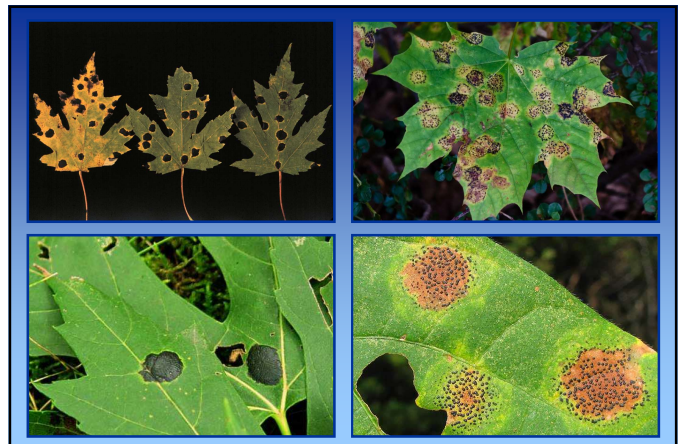
- **Control**
  - DO NOT panic
  - Remove/destroy diseased leaves and branches
    - Burn (where allowed)
    - Deep bury
    - Hot compost

### Top Ten Tree Diseases Anthracnose

- **Control**
  - Use fungicides to prevent infections
    - Copper-containing fungicides, chlorothalonil, mancozeb, thiophanate methyl
    - Alternate active ingredients (FRAC codes)
    - Apply at bud break, 1/2 and full leaf expansion

### Top Ten Tree Diseases Tar Spot

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



## Top Ten Tree 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 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 Diseases Powdery Mildews

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



## Top Ten Tree 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 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 Diseases **Black Knot**

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



### Top Ten Tree 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 Diseases **Black Knot**

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

### Top Ten Tree Diseases **Verticillium Wilt**

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

### Top Ten Tree Diseases **Verticillium Wilt**

- **Hosts**
  - Many woody ornamentals
    - Common: Maple, ash, redbud, smokebush
    - "New": Seven son flower, wafer-ash, buttonbush
  - Many herbaceous plants and vegetables
- **Favorable environment**
  - Cool, wet weather (for infection)
  - Hot, dry weather (for symptom development)



### Top Ten Tree 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
  - Avoid municipal mulches

### Top Ten Tree 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 Diseases Verticillium Wilt

- **Control**
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach
  - Make plants comfortable until they die
  - Remove and destroy diseased plants (Burn where allowed)
  - DO NOT use fungicides

### Top Ten Tree Diseases Chlorosis

- **Cause:** Micronutrient (Fe or Mn) deficiency
- **Affected plants**
  - Oaks (especially pin oak)
  - Red Maples
  - Rhododendrons
  - Other woody (and herbaceous) plants







## Top Ten Tree Diseases Chlorosis

- **Management**

- Plant the right plant in the right location
- Monitor soil pH and soil nutrients
- Decrease pH using sulfur or aluminum sulfate
- Add chelated Fe and/or Mn as needed
- Make sure trees are adequately watered
- Minimize damage to tree root systems

## Top Ten Tree 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  
<http://pddc.wisc.edu>*

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