

## WAA 2020 Virtual Summer/Fall Seminar

### Woody Ornamental Disease Update

Brian D. Hudelson

Department of Plant Pathology

University of Wisconsin-Madison/Extension

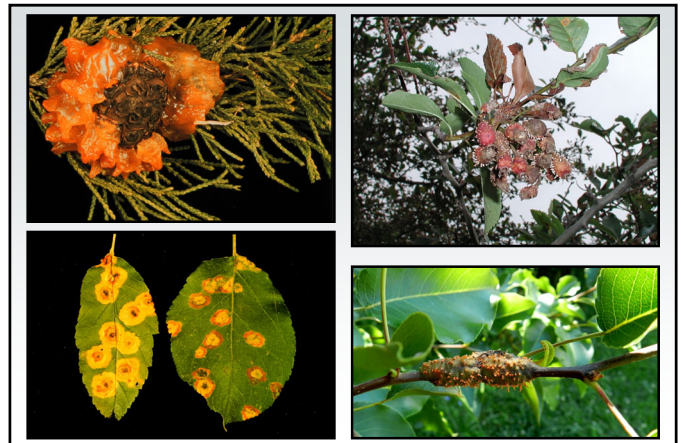


### Woody Ornamental Disease Update Gymnosporangium Rusts

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

### Woody Ornamental Disease Update Gymnosporangium Rusts

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



### Woody Ornamental Disease Update 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.extension.wisc.edu/>)
    - “Home Fruit Cultivars for Southern Wisconsin” (<https://learningstore.extension.wisc.edu/>)

### Woody Ornamental Disease Update Gymnosporangium Rusts

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

## Woody Ornamental Disease Update 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

## Woody Ornamental Disease Update Elderberry Rust

- **Pathogen:** *Puccinia bolleyana*
- **Hosts**
  - Elderberry
  - Sedges
- **Favorable environment:** Wet weather

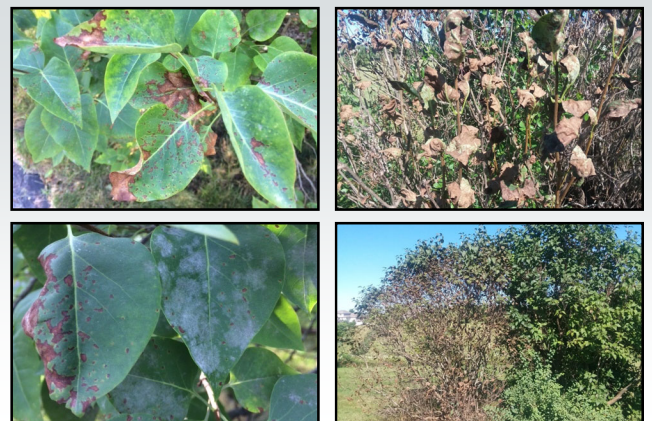


## Woody Ornamental Disease Update Elderberry Rust

- **Control**
  - Prune out galls
  - Decontaminate pruning tools (70% alcohol, disinfectants, 10% bleach)
  - Remove sedges
  - DO NOT use fungicides

## Woody Ornamental Disease Update Septoria Leaf Spot

- **Cause:** *Septoria* sp.
- **Host:** Lilac
- **Favorable environment:** Wet weather



## Woody Ornamental Disease Update

### Septoria Leaf Spot

- **Control**
  - Space lilacs to promote good air flow
  - Routinely thin shrubs
  - Decontaminate pruning tools  
(70% alcohol, disinfectants, 10% bleach)
  - Avoid overhead watering
  - Reduce stress

## Woody Ornamental Disease Update

### Septoria Leaf Spot

- **Control**
  - Destroy infected materials
    - Burn (where allowed)
    - Deep bury
    - Hot compost
  - Use fungicides to prevent infections
    - Chlorothalonil, copper, mancozeb
    - Apply from bud break through the end of favorable weather
    - Apply at 7 to 14-day intervals

## Woody Ornamental Disease Update

### Planting-Related Decline

- **Causes**
  - Impatience
  - Improper plant techniques
    - Overly deep planting
    - Failure to remove burlap, wire basket, wires
    - Lack of watering post installation
- **Hosts: Any tree or shrub**



## Woody Ornamental Disease Update

### Planting-Related Decline

- **Management**
  - Plant small trees
  - Plant bare-root trees
  - Prepare balled and burlaped trees properly
    - Remove burlap
    - Remove wire basket
    - Remove wires/cords
    - Expose the root flare



## Woody Ornamental Disease Update Planting-Related Decline

- **Management**
  - **Mulch properly**
    - Use high quality mulches
    - Use the right amount of mulch
  - **Water properly**
    - Apply two inches of water per week
    - Water from bud break through summer and into the fall
    - Continue this watering for at least three years

## Woody Ornamental Disease Update Fire Blight

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



## Woody Ornamental Disease Update 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

## Woody Ornamental Disease Update 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

## Woody Ornamental Disease Update Fire Blight

- **Control**
  - Use bactericides to prevent infections (?)
    - Copper, streptomycin
    - Apply
      - Pre-bloom (copper)
      - During flowering (streptomycin)
    - Apply every
      - Two applications at spaced 4 days apart (copper)
      - Multiple applications spaced 3-4 days apart (streptomycin)

## Woody Ornamental Disease Update

### Anthracnose

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



## Woody Ornamental Disease Update

### Anthracnose

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

## Woody Ornamental Disease Update

### Anthracnose

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

## Woody Ornamental Disease Update

### Scab (Apple and Pear)

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



## Woody Ornamental Disease Update Scab (Apple and Pear)

- **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/>)

## Woody Ornamental Disease Update Scab (Apple and Pear)

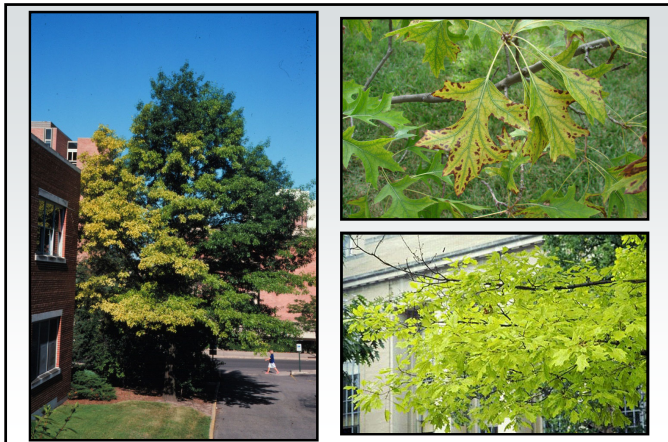
- **Control**
  - Remove/destroy diseased leaves
    - Burn (where allowed)
    - Deep bury
    - Hot compost
  - Thin trees to promote air flow
  - Decontaminate pruning tools (70% alcohol, disinfectants, 10% bleach)

## Woody Ornamental Disease Update 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 to 14-day intervals

## Woody Ornamental Disease Update Chlorosis

- **Cause:** Micronutrient (Fe or Mn) deficiency
- **Affected plants**
  - Oaks (especially pin oak)
  - Red maple
  - Rhododendron
  - White pine
  - Blueberries
  - Other woody (and herbaceous) plants



## Woody Ornamental Disease Update 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

## Woody Ornamental Disease Update Boxwood Blight

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



## Woody Ornamental Disease Update Boxwood Blight

- **Control**
  - Be cautious about holiday wreaths
  - Grow shrubs other than boxwood
  - Buy from a reputable supplier
  - Buy locally produced boxwood

## Woody Ornamental Disease Update 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'

## Woody Ornamental Disease Update Boxwood Blight

- **Control**
  - DO NOT replant in an area where boxwood blight has been a problem
  - Avoid symptomatic plants
  - Keep new plants isolated
  - Space plants far apart
  - DO NOT overhead water



## Woody Ornamental Disease Update Boxwood Blight

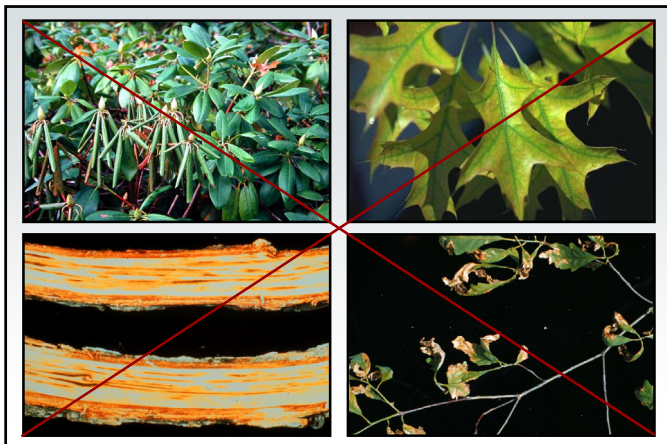
- **Control**
  - Prune out diseased branches
  - Decontaminate
    - 70% alcohol
    - Commercial disinfectants
  - Remove and destroy infected plants
    - Burn (where allowed)
    - Deep bury (two feet)/Double bag and landfill
    - DO NOT compost

## Woody Ornamental Disease Update Boxwood Blight

- **Control**
  - Use fungicides to prevent infections
    - Chlorothalonil (alone or with propiconazole or thiophanate-methyl), fludioxonil, metconazole, tebuconazole
    - Alternate active ingredients (FRAC codes)
    - Apply at 7 day intervals
  - Contact the PDDC if you suspect you have seen this disease
  - WI DATCP will follow up

## Woody Ornamental Disease Update Sudden Oak Death (Ramorum Blight)

- **Cause:** *Phytophthora ramorum*
- **Hosts**
  - A wide range of woody and herbaceous ornamentals
  - Rhododendrons/Azaleas
  - Roses (Red 'Double Knockout')
  - Viburnums
  - Lilacs
  - Oaks



## Woody Ornamental Disease Update Sudden Oak Death (Ramorum Blight)

- **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
  - Remove and destroy infected plants



**Woody Ornamental Disease Update**  
**Sudden Oak Death (Ramorum Blight)**

- **Control**
  - Decontaminate
    - 70% alcohol
    - 10% bleach
    - Commercial disinfectants
  - Contact the PDDC if you believe you have seen this disease
  - WI DATCP/USDA APHIS will follow up

**Woody Ornamental Disease Update**  
**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](mailto:pddc@wisc.edu)  
<https://pddc.wisc.edu>

Follow on Facebook and Twitter @UWPDDC  
Subscribe to the PDDC Listserv: UWPDDCLearn