

## 2015 Winter Seminar Series

### Top Ten Diseases of 2014

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## 2014 Winter Seminar Series Winter Injury

- **Causes**
  - Drought stress
  - Extreme winter conditions
- **Affected plants**
  - Virtually anything
  - Evergreens (yews and boxwoods)
  - Fruit trees
  - Redbud

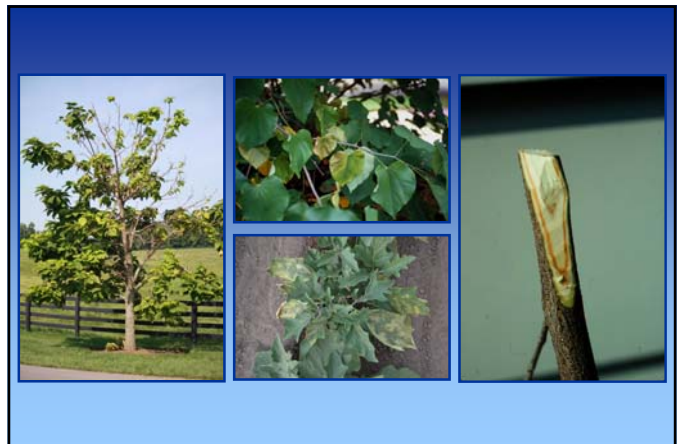


## 2014 Winter Seminar Series Winter Injury

- **Control**
  - Water trees and shrubs adequately, particularly in the fall
  - Plant sensitive trees and shrubs in protected locations
  - Insulate sensitive plants where possible
  - Pray for snow

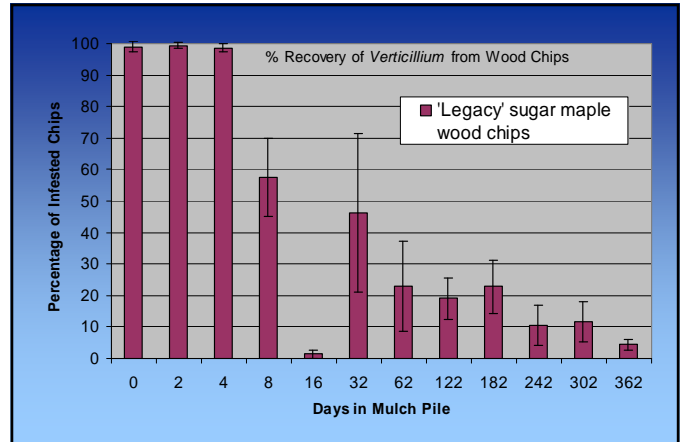
## 2014 Winter Seminar Series Verticillium Wilt

- **Causes:** Verticillium dahliae  
Verticillium albo-atrum
- **Hosts**
  - Many woody ornamentals
    - Common: Maple, ash, redbud, smokebush
    - “New”: Seven son flower, wafer-ash, buttonbush
  - Many herbaceous plants
  - Many vegetables (tomato, potato, eggplant)
- **Favorable environment:** Cool, wet weather



## 2014 Winter Seminar Series 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



- **Wood Chips as an Inoculum Source**
  - **Amur maple**
    - 30.0%/25.0% (Trted)
    - 0.0%/0.0% (Non-Trted)
  - **Green Ash**
    - 23.7%/10.5% (Trted)
    - 0.0%/0.0% (Non-Trted)
  - **Redbud**
    - 10.7%/13.3% (Trted)
    - 0.0%/0.0% (Non-Trted)

## 2014 Winter Seminar Series Verticillium Wilt

- **Control**
  - Use “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

## 2014 Winter Seminar Series Verticillium Wilt

- **Control**
  - Prevent plant stress
  - Prune diseased (wilted) areas
  - Decontaminate pruning tools
  - Make infected trees comfortable until they die
  - Remove diseased plants
  - Destroy infected materials
  - Composting?

## 2014 Winter Seminar Series Guignardia Leaf Blotch

- **Cause:** Guignardia aesculi
- **Hosts**
  - Horse-chestnut
  - Ohio buckeye
- **Favorable environment:** Cool, wet weather



**2014 Winter Seminar Series  
Guignardia Leaf Blotch**

- **Control**
  - **DO NOT panic**
  - **Remove diseased leaves**
  - **Use fungicides to prevent infections**
    - **Copper-containing fungicides, chlorothalonil, mancozeb, thiophanate methyl**
    - **3 applications at bud break, 1/2 expansion of leaves, full leaf expansion**

**2014 Winter Seminar Series  
Tar Spot**

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



**2014 Winter Seminar Series  
Tar Spot**

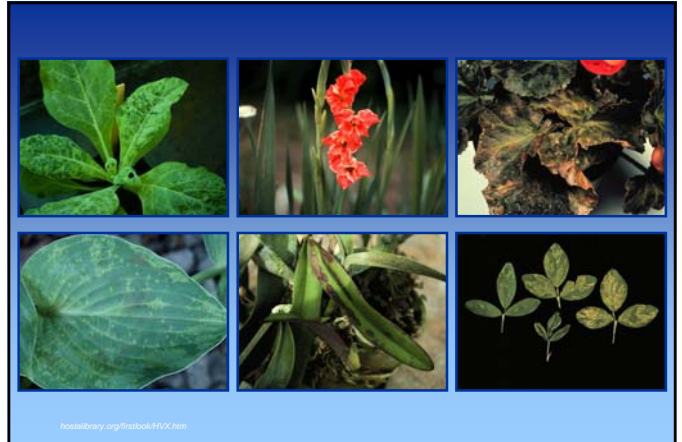
- **Control**
  - **DO NOT panic**
  - **Remove diseased leaves**
    - **Burn**
    - **Bury**
    - **Hot compost**
  - **Use fungicides to prevent infections**
    - **Copper-containing fungicides**
    - **At bud break, 1/2 and full leaf expansion**

**2014 Winter Seminar Series  
Viral Diseases**

- **Causes**
  - **Many and varied**
  - **Tobacco mosaic virus (TMV)**
  - **Cucumber mosaic virus (CMV)**
  - **Impatiens necrotic spot virus (INSV)**
  - **Hosta virus X (HVX)**
  - **Cymbidium mosaic virus (CyMV)**
  - **Alfalfa mosaic virus (AMV)**

## 2014 Winter Seminar Series Viral Diseases

- **Hosts**
  - Wide range: TMV, CMV, INSV, HVX, AMV
  - Narrow range: CyMV
- **Favorable environment: None**
- **Transmission**
  - Touch (TMV)
  - Mechanical injury (HVX, CyMV)
  - Insects (CMV, INSV, AMV)



## 2014 Winter Seminar Series Viral Diseases

- **Control**
  - Buy plants from a reputable source
  - DO NOT buy symptomatic plants
  - Pretest plants for viruses
  - Keep weeds under control
  - Control vectors (insects)
  - DO NOT smoke around your plants
  - Remove and destroy infected plants

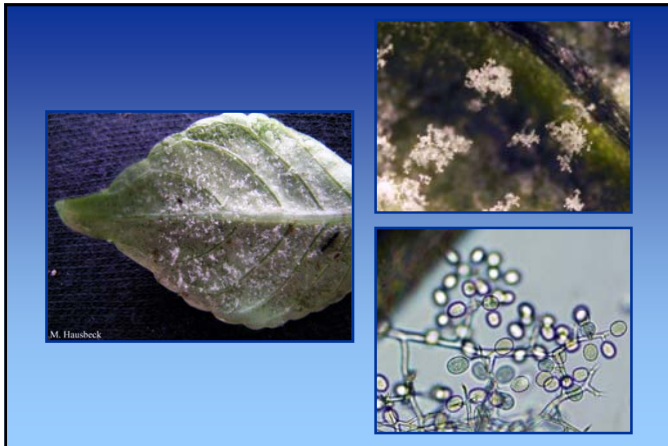
## 2014 Winter Seminar Series Viral Diseases

- **Control**
  - Wash hands routinely
  - Disinfest contaminated materials
    - 1% sodium dodecyl sulfate (sodium lauryl sulfate) + 1% Alconox® (2½ Tbsp + 2¼ Tbsp/gal)
    - 20% low fat dry milk (Carnation®) + 0.1% polysorbate 20 (9¼ cups + ¼ tsp/gal)
    - Trisodium phosphate (14 dry oz/gal)
    - Alcohol dip followed by flaming

## 2014 Winter Seminar Series Impatiens Downy Mildew

- **Cause: Plasmopara obducens**
- **Hosts**
  - Standard garden impatiens (*I. walleriana*)
  - Balsam impatiens (*I. balsamina*)
  - Jewelweed (*I. pallida*, *I. capensis*)
  - New Guinea impatiens (*I. hawkeri*) (resistant/tolerant)
- **Favorable environment: Wet weather**





### 2014 Winter Seminar Series Impatiens Downy Mildew

- **Control**
  - Grow tolerant/resistant/immune plants
  - Start with clean transplants and seed
  - Keep materials from different sources physically separated
  - DO NOT grow impatiens in the same area every year
  - DO NOT overcrowd plants
  - DO NOT overhead water

### 2014 Winter Seminar Series Impatiens Downy Mildew

- **Control**
  - Watch for disease on a regular basis
  - Bag and discard affected plants
    - Symptomatic plants
    - Asymptomatic surrounding plants
  - Disinfest contaminated materials

### 2014 Winter Seminar Series Impatiens Downy Mildew

- **Control**
  - Use fungicides to prevent infections
    - Mefenoxam, fluopicolide, potassium phosphite, mancozeb, pyraclostrobin + boscalid, fluoxastobin, cyazofamid, dimethomorph, fenamidone, azoxystrobin
    - Alternate active ingredients (FRAC codes)
    - Apply at 7 day application intervals

### 2014 Winter Seminar Series Foliar Nematodes

- **Cause:** Aphelenchoides spp.
- **Hosts**
  - Wide host range
  - Hosta
  - Plants in the Saxifrage family
- **Favorable environment:** None



## 2014 Winter Seminar Series Foliar Nematodes

- **Control**
  - Start with clean propagation materials
  - Follow strict sanitation procedures when working with plant materials
  - Remove symptomatic plants
  - Remove contaminated plant debris
  - Avoid overhead irrigation
  - Hot water treatments (10 minutes at 125°F)

## 2014 Winter Seminar Series Southern Blight

- **Pathogen:** Sclerotium rolfsii
- **Hosts**
  - Many other herbaceous annuals and perennials
  - Some woody ornamentals
  - Hosta
  - Bedding plants
- **Favorable environment:** None



## 2014 Winter Seminar Series Southern Blight

- **Control**
  - Inspect plants prior to purchase and avoid infected plants
  - Avoid cocoa mulch (????)
  - Remove infected plants
  - Use fungicides for control
    - triadimefon
    - 14 – 28 day intervals
  - Pray for a cold winter

## 2014 Winter Seminar Series Plum Pockets

- **Cause:** Taphrina communis
- **Host:** Plum
- **Favorable environment:** Wet weather



## 2014 Winter Seminar Series Plum Pockets

- **Control**
  - Remove and destroy symptomatic fruits
    - Burn
    - Bury
    - Hot compost
  - Prune/thin trees to improve air flow
  - Use fungicides to prevent infections
    - Chlorothalonil, copper, ferbam
    - Apply after leaf fall and/or before leaf emergence

## 2014 Winter Seminar Series Rhizosphaera Needle Cast

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

## 2014 Winter Seminar Series Rhizosphaera Needle Cast

- **Hosts (minor)**
  - Pines: Austrian, mugo, eastern white pine
  - Douglas fir
  - Hemlock
  - Balsam fir
- **Favorable environment**
  - Long periods of needle wetness
  - High humidity



## 2014 Winter Seminar Series 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

## 2014 Winter Seminar Series Rhizosphaera Needle Cast

- **Control**
  - Use fungicides to prevent infections
    - Copper-containing fungicides, chlorothalonil
    - Bud break
    - 3-4 week application interval under favorable conditions

***2014 Winter Seminar Series  
How to Contact the PDDC***

***Plant Disease Diagnostics Clinic  
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