

## 2016 Winter Seminar Series

### **Deadly Diseases in the Landscape:** *New and Emerging Diseases to Keep on Your Radar*

**Brian D. Hudelson**

**Department of Plant Pathology**

**University of Wisconsin-Madison/Extension**



## 2016 Winter Seminar Series **Boxwood (Box) Blight**

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



## 2016 Winter Seminar Series **Boxwood (Box) Blight**

- **Control**
  - Buy locally produced boxwood
  - Grow resistant varieties
    - 'Green Mound'
    - 'Glencoe' (Chicagoland Green®)
  - Avoid symptomatic plants
  - Keep new plants isolated
  - Physically separate boxwood plantings
  - Space plants far apart

## 2016 Winter Seminar Series **Boxwood (Box) Blight**

- **Control**
  - DO NOT overhead water
  - Prune out diseased branches
  - Disinfect pruning tools and other items
    - 70% alcohol
    - 10% bleach
  - Remove and destroy infected plants
    - Burn (where allowed)
    - Deep bury

## 2016 Winter Seminar Series **Boxwood (Box) Blight**

- **Control**
  - Use fungicides treatments
    - Azoxystrobin, chlorothalonil, fludioxonil, iprodione, kresoxim-methyl, mancozeb, metconazole, propiconazole, pyraclostrobin, tebuconazole, thiophanate-methyl, triflumidazole
    - 7 day application intervals
    - Alternate active ingredients (FRAC codes)
  - Contact the PDDC if you believe you have found boxwood (box) blight!

## 2016 Winter Seminar Series Thousand Cankers Disease

- Cause: *Geosmithia morbida*
- Hosts
  - Black walnut
  - Other walnuts
- Favorable Environment: None
- Transmission
  - Walnut twig beetle  
(*Pityophthorus juglandis*)

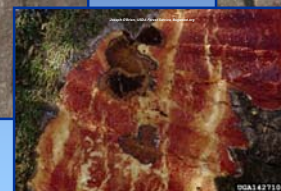


## 2016 Winter Seminar Series Thousand Cankers Disease

- Control
  - DO NOT transport walnut wood/products from areas known to have the disease
  - Remove and destroy (burn) affected trees (assisted by WI DATCP and USDA APHIS)
  - No effective fungicide strategies known
  - No effective insecticide strategies known
  - Contact the PDDC if you believe you have found this disease!

## 2016 Winter Seminar Series Ramorum Blight (Sudden Oak Death)

- Cause: *Phytophthora ramorum*
- Hosts
  - Coast live oak, California black oak, Shreve oak, tanoak, big leaf maple, huckleberry, California bay laurel, madrone, manzanita, huckleberry, California honeysuckle, toyon, California buckeye, California coffeeberry, arrow wood, and many others
  - Rhododendron, *Viburnum* spp.
  - Northern red oak, northern pin oak (by inoculation)
- Favorable environment: Wet weather





### 2016 Winter Seminar Series Ramorum Blight (Sudden Oak Death)

- **Control**
  - Buy plants from a reputable sources
  - Carefully inspect plants prior to purchase
  - Keep new plants isolated
  - Remove and destroy infected plants (assisted by WI DATCP and USDA APHIS)
  - Contact the PDDC if you believe you have found this disease!

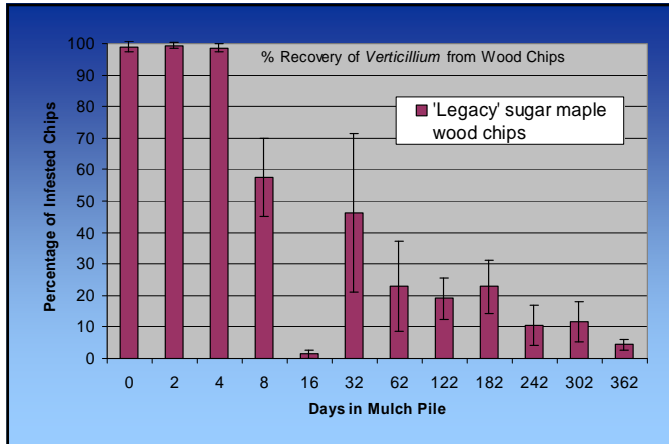

### 2016 Winter Seminar Series Verticillium Wilt

- **Causes:** Verticillium dahliae  
Other Verticillium spp.
- **Hosts**
  - Many woody ornamentals
    - Common: Maple, ash, redbud, smokebush
    - “New”: Seven son flower, wafer-ash, buttonbush, Eastern leatherwood
  - Many herbaceous plants (and vegetables)
- **Favorable environment:** Cool, wet weather



### 2016 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)

### 2016 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
  - Prevent plant stress
  - Prune diseased (wilted) areas

### 2016 Winter Seminar Series *Verticillium* Wilt

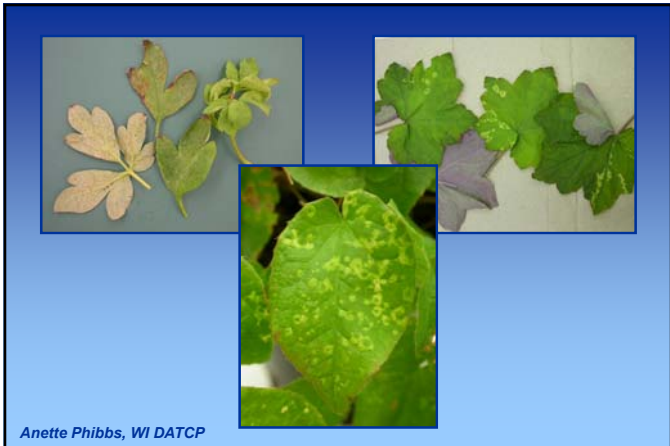
- **Control**
  - Decontaminate pruning tools
    - 70% alcohol
    - 10% bleach
  - Make infected trees comfortable until they die
  - Remove and destroy diseased materials
    - Burn (where allowed)
    - Hot compost?

### 2016 Winter Seminar Series Tobacco Rattle

- **Cause:** Tobacco Rattle Virus
- **Hosts**
  - **Ornamentals**
    - Astilbe, bleeding heart, columbine, coral bells, daffodils, epimedium, gladiolus, hyacinth, hosta, marigold, peony, tulip, vinca
  - **Vegetables**
    - Beans, beet, pepper, POTATO, spinach
- **Favorable environment:** None

### 2016 Winter Seminar Series Tobacco Rattle

- **Transmission**
  - Stubby-root nematodes
    - *Trichodorus* spp.
    - *Paratrichodorus* spp.
  - Mechanical inoculation
  - Grafting
  - Seed



### 2016 Winter Seminar Series Tobacco Rattle

- **Control**
  - **DO NOT buy symptomatic plants**
  - **Grow non-susceptible plants**
    - Annual phlox, carnation, devil's trumpet (downy thorn-apple), sweet William, zinnia, zombie cucumber
  - **Remove and destroy infected plants**
    - Burn (where allowed)
    - Deep bury
    - Hot compost

### 2016 Winter Seminar Series Tobacco Rattle

- **Control**
  - **Decontaminate 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
  - **Control stubby-root nematode = not practical**

### 2016 Winter Seminar Series Tomato Chlorotic Dwarf

- **Cause:** Tomato chlorotic dwarf viroid
- **Hosts**
  - Chrysanthemum, leucanthemum, petunia, verbena, vinca
  - Potato, tomato
- **Favorable environment:** None
- **Transmission:** Mechanical



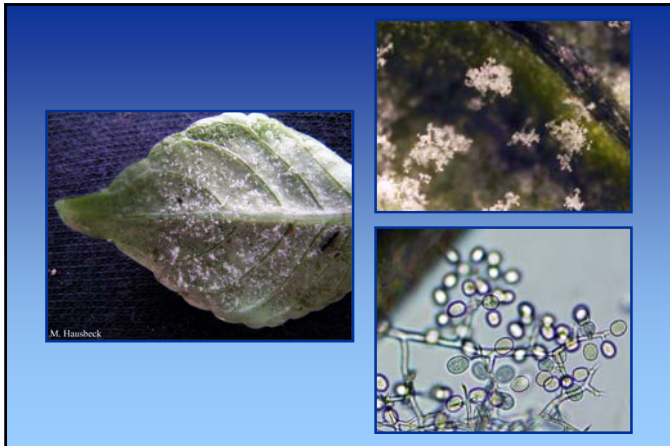


### 2016 Winter Seminar Series Tomato Chlorotic Dwarf

- **Control**
  - Start with clean propagation materials
  - Keep plants from multiple sources separated
  - Decontaminate appropriately
    - 10% bleach (tools, pots, surfaces)
    - Soap and water (hands and clothing)
  - Remove and destroy infected plants (burn)
  - Contact the PDDC if you believe you have found this disease!

### 2016 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



### 2016 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

## 2016 Winter Seminar Series Impatiens Downy Mildew

- **Control**
  - Watch for disease on a regular basis
  - Bag and discard affected plants
    - Symptomatic plants
    - Asymptomatic surrounding plants
  - Disinfect contaminated materials
    - 10% bleach
    - 70% alcohol

## 2016 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

## 2016 Winter Seminar Series Southern Blight

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



## 2016 Winter Seminar Series Southern Blight

- **Control**
  - Inspect plants prior to purchase
  - Avoid cocoa mulch (?)
  - Remove infected plants
  - Amend soil with organic matter (?)
  - Use fungicides for control
    - azoxystrobin, flutolanil, flutolanil + thiophanate-methyl, PCNB, tebuconazole, triadimefon
    - 14 – 28 day intervals
  - Pray for a really, really, REALLY cold winter

## 2016 Winter Seminar Series Ralstonia Wilt

- **Cause:** Ralstonia solanacearum
  - Race/biovar
  - Phylotype/sequevar
- **Hosts**
  - Geranium
  - Many other herbaceous plants
  - Potato
- **Favorable environment:** Milder winters



**2016 Winter Seminar Series  
Ralstonia Wilt**

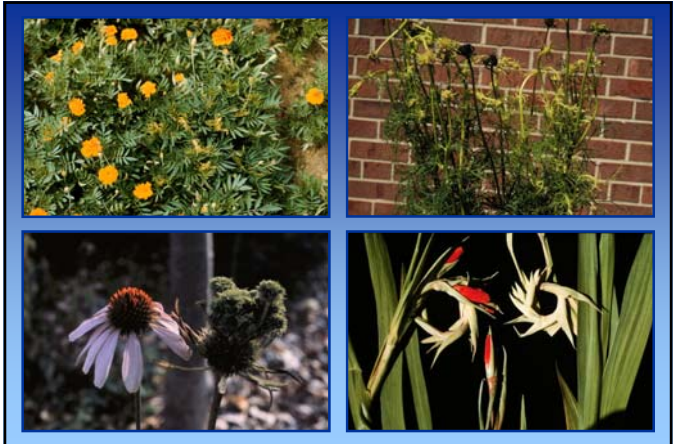
- **Control**
  - Start with clean propagation materials
  - Keep plants from multiple sources separated
  - Disinfect pruning tools, surfaces and hands
    - 10% bleach or 70% alcohol (tools, surfaces)
    - Soap and water or hand sanitizers (hands)

**2016 Winter Seminar Series  
Ralstonia Wilt**

- **Control**
  - Contact the PDDC if you believe you have found this disease!
  - Remove and destroy (incinerate or landfill) infected plants (assisted by WI DATCP and USDA APHIS)

**2016 Winter Seminar Series  
Aster Yellows**

- **Pathogen:** Aster yellows phytoplasma
- **Hosts**
  - Many plants in the Asteraceae (aster family)
  - Many plants in many other plant families
- **Favorable environment:** None
- **Transmission:** Aster leafhopper







## 2016 Winter Seminar Series Aster Yellows

- **Control**
  - Remove and destroy infected plants
    - Burn (where allowed)
    - Deep bury
    - Hot compost
  - Control leafhopper vector (?)

## 2016 Winter Seminar Series How to Contact the PDDC

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](mailto:pddc@plantpath.wisc.edu)  
<http://pddc.wisc.edu>  
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