

## Retzer Nature Center Spring Workshop

### The Bad and the Ugly: Ten Plant Diseases Not to Compost

Brian D. Hudelson  
Department of Plant Pathology  
University of Wisconsin-Madison/Extension



### Ten Plant Diseases Not to Compost Southern Blight

- Pathogen: *Sclerotium rolfsii*
- Hosts
  - Any herbaceous plant
  - Some woody plants
- Favorable environment: Warm, wet weather



### Ten Plant Diseases Not to Compost Southern Blight

- Control
  - DO NOT buy infected/infested plants
  - Avoid cocoa mulch (?)
  - Remove infected plants, mulch and soil
    - Double bag and landfill
  - Disinfest contaminated materials (70% alcohol, disinfectants, bleach)

### Ten Plant Diseases Not to Compost Southern Blight

- Control
  - Amend soil with organic matter (?)
  - Allow affected areas to go fallow
  - Use fungicides for control
    - Contract with a professional pesticide applicator
    - Azoxystrobin, flutolanil, flutolanil + thiophanate-methyl, PCNB, tebuconazole, triadimefon
    - Alternate active ingredients (FRAC codes)
    - Apply at 14 – 28 day intervals
  - Pray for a really, really, REALLY cold winter

### Ten Plant Diseases Not to Compost Late Blight

- Pathogen: *Phytophthora infestans*
- Hosts
  - Potato
  - Tomato
- Favorable environment: Cool, wet weather



## Ten Plant Diseases Not to Compost Late Blight

- **Control**
  - Remove any infected plants and plant parts
    - Infected tomato/potato plants including fruits and tubers
    - Volunteer tomato and potato plants
    - Weed hosts
  - Destroy any infected plants and plant parts
    - Burn (where allowed)
    - Double bag and landfill

## Ten Plant Diseases Not to Compost Late Blight

- **Control**
  - DO NOT use last year's potatoes as seed
  - DO use certified seed potatoes
  - Grow resistant tomato varieties
    - "Late Blight Management in Tomato with Resistant Varieties"  
(<https://eorganic.org/node/10822>)

## Ten Plant Diseases Not to Compost Late Blight

- **Control**
  - Use fungicides to prevent infections
    - Chlorothalonil, mancozeb
    - Copper
    - Alternate active ingredients (FRAC codes)
    - Start applications based on Blitecast  
(<https://wisconsinpotatoes.com/blog-news/>)
    - Apply at 7-14 day intervals

## Ten Plant Diseases Not to Compost Impatiens Downy Mildew

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



### Ten Plant Diseases Not to Compost Impatiens Downy Mildew

- Control
  - DO NOT grow impatiens in the same location every year
  - Grow tolerant/resistant/immune plants
    - New Guinea impatiens
    - New Guinea impatiens hybrids ('Sunpatiens')
    - Garden impatiens (Beacon and Imara XDR series)
  - Start with clean transplants and seed

### Ten Plant Diseases Not to Compost Impatiens Downy Mildew

- Control
  - Keep materials from different sources physically separated
  - DO NOT overcrowd plants
  - DO NOT overhead water
  - Watch carefully for the disease
  - Bag and discard affected plants
    - Symptomatic plants
    - Asymptomatic surrounding plants

### Ten Plant Diseases Not to Compost Impatiens Downy Mildew

- Control
  - Disinfect contaminated materials (70% alcohol, disinfectants, bleach)
  - Use fungicides to prevent infections
    - Mancozeb
    - Apply at 7 day intervals

### Ten Plant Diseases Not to Compost Boxwood Blight

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



### Ten Plant Diseases Not to Compost Boxwood Blight

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

## Ten Plant Diseases Not to Compost Boxwood Blight

- **Control**
  - Grow resistant varieties
    - Hybrid boxwood
      - ‘Green Gem’
      - ‘Karzgreen’ (Green Ice®)
    - Japanese littleleaf boxwood
      - ‘Jim Stauffer’
      - ‘Little Missy’
      - ‘Winter Gem’

## Ten Plant Diseases Not to Compost Boxwood Blight

- **Control**
  - Grow resistant varieties
    - Korean littleleaf boxwood
      - ‘Eseles’ (Wedding Ring®)
      - ‘Franklin’s Gem’
      - ‘Pincushion’
      - ‘Wee Willie’
      - ‘Winter Beauty’
      - ‘Wintergreen’

## Ten Plant Diseases Not to Compost 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

## Ten Plant Diseases Not to Compost 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

## Ten Plant Diseases Not to Compost 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

## Ten Plant Diseases Not to Compost Tobacco Mosaic

- **Pathogen:** *Tobacco mosaic virus* (TMV)
- **Hosts**
  - Many herbaceous ornamentals
  - Many vegetables
- **Favorable environment:** None
- **Transmission: Mechanical**
  - Touch
  - Tools





### Ten Plant Diseases Not to Compost Tobacco Mosaic

- **Control**
  - Buy plants from a reputable source
  - Inspect plants for symptoms
  - Test plants prior to purchase
  - DO NOT smoke around plants
  - Wash hands routinely with soap and water
  - Keep weeds under control
  - Landfill diseased plants and plant debris

### Ten Plant Diseases Not to Compost Tobacco Mosaic

- **Control**
  - Disinfest contaminated materials
    - 1% Sodium dodecyl sulfate (sodium lauryl sulfate) + 1% Alconox® (2½ Tbsp + 2¼ Tbsp/gal)
    - Trisodium phosphate (14 dry oz/gal)
    - 20% low fat dry milk (Carnation®) + 0.1% polysorbate 20 (9½ cups + ¼ tsp/gal)
    - Alcohol dip followed by flaming
  - DO NOT use chemical controls on plants

### Ten Plant Diseases Not to Compost Fire Blight

- **Pathogen:** *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)



### Ten Plant Diseases Not to Compost Fire Blight

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

## Ten Plant Diseases Not to Compost Fire Blight

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

## Ten Plant Diseases Not to Compost 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)

## Ten Plant Diseases Not to Compost Verticillium Wilt

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

## Ten Plant Diseases Not to Compost 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')

## Ten Plant Diseases Not to Compost Verticillium Wilt

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





### Ten Plant Diseases Not to Compost 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

### Ten Plant Diseases Not to Compost 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

### Ten Plant Diseases Not to Compost Verticillium Wilt

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

### Ten Plant Diseases Not to Compost Crown Gall

- Pathogens
  - *Agrobacterium tumefaciens*
  - *Agrobacterium vitis*
- Hosts
  - Plants in 93 plant families
  - Trees and shrubs (deciduous and coniferous)
  - Herbaceous plants
- Favorable environment: None



### Ten Plant Diseases Not to Compost Crown Gall

- Control
  - DO NOT buy infected plant
  - Buy well-adapted, winter-hardy plants
  - Avoid wounding plants during transplant
  - Consider root dips of *A. radiobacter*
  - Prune out galls
  - Decontaminate pruning tools (70% alcohol, disinfectants, bleach)

### Ten Plant Diseases Not to Compost Crown Gall

- Control
  - Remove plants (including roots) and soil
  - Destroy infected materials
    - Burn (where allowed)
    - Landfill
  - Plant nonsusceptible plants
  - DO NOT use bactericides

### Ten Plant Diseases Not to Compost Ralstonia wilt

- Pathogens: *Ralstonia solanacearum*
  - races
  - biovars
- Hosts
  - Geranium
  - Many other herbaceous plants
  - Potato
- Favorable environment: Warm weather



### Ten Plant Diseases Not to Compost Ralstonia wilt

- Control
  - Start with clean propagation materials
  - Follow strict sanitation procedures when working with plant materials
    - Keep plants from different sources separated
    - Disinfect pruning tools
    - Disinfect hands when working with plants
  - Contact the PDDC if you suspect you have seen this disease

### Ten Plant Diseases Not to Compost Sudden Oak Death (Ramorum Blight)

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





### Ten Plant Diseases Not to Compost 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

### Ten Plant Diseases Not to Compost Sudden Oak Death (Ramorum Blight)

- Control
  - Remove and destroy infected plants
  - Decontaminate (70% alcohol, disinfectants, bleach)
  - Contact the PDDC if you believe you have seen this disease

### Ten Plant Diseases Not to Compost 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, Twitter, YouTube: @UWPDDC  
 Subscribe to the PDDC Listserv: UWPDDCLearn