

## Winter Seminar Series 2020

### New and Emerging Plant Diseases

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### New and Emerging Plant Diseases Boxwood Blight

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

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### New and Emerging Plant Diseases Boxwood Blight

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

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### New and Emerging Plant Diseases 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'

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### New and Emerging Plant Diseases 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

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## New and Emerging Plant Diseases 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

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## New and Emerging Plant Diseases 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

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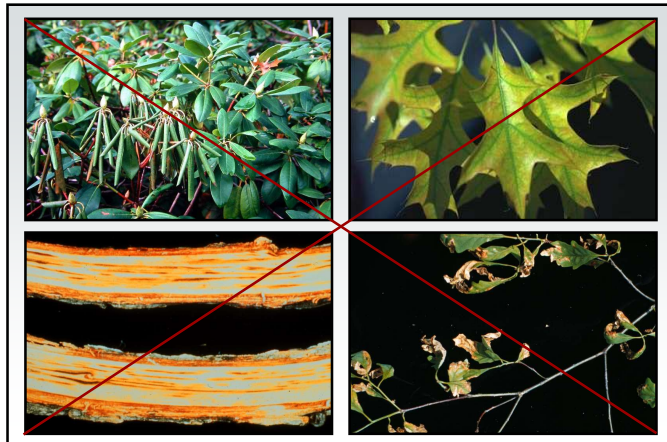
## New and Emerging Plant Diseases Sudden Oak Death (Ramorum Blight)

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

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## New and Emerging Plant Diseases 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

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## New and Emerging Plant Diseases Sudden Oak Death (Ramorum Blight)

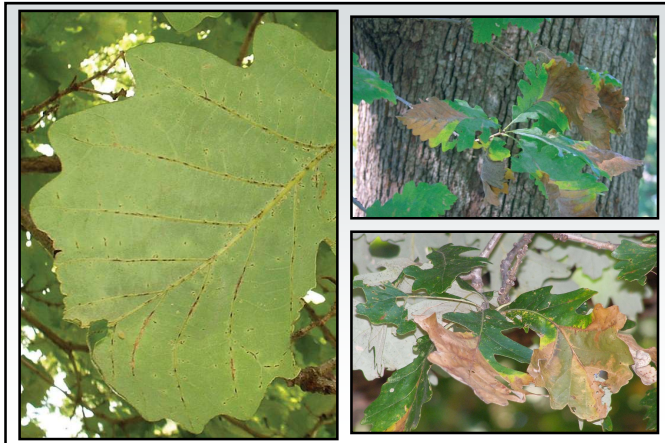
- **Control**
  - Remove and destroy infected plants
  - Decontaminate (70% alcohol, 10% bleach, commercial disinfectants)
  - Contact the PDDC if you believe you have seen this disease

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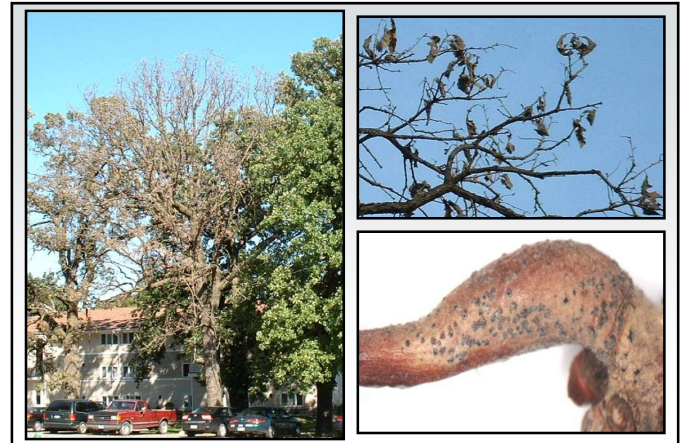
## New and Emerging Plant Diseases Bur Oak Blight

- **Cause:** *Tubakia iowensis*
- **Host:** Bur oak
  - *Quercus macrocarpa* var. *oliviformis*
  - *Quercus macrocarpa* var. *macrocarpa*
- **Favorable Environment**
  - Cool, wet weather
  - Stress?

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## New and Emerging Plant Diseases Bur Oak Blight

- **Control**
  - Reduce stress
    - Water stress
    - Nutrient stress (chlorosis)
  - Diseases/insect pests
    - Oak wilt
    - Armillaria root disease
    - Leaf diseases (anthracnose, Tubakia leaf spot, etc.)
    - Two-lined chestnut borer

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## New and Emerging Plant Diseases Bur Oak Blight

- **Control**
  - Use fungicide injections
    - Propiconazole
    - Prophylactic
    - Late May or early June
    - Every 12-24 months

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## New and Emerging Plant Diseases Beech Bark Disease

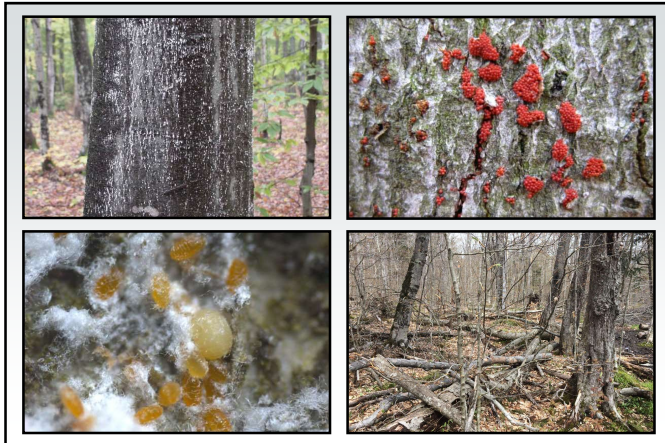
- **Causes**
  - *Neonectria faginata*
  - *Neonectria ditissima*
  - *Bionectria ochroleuca*
- **Hosts**
  - American beech
  - European beech

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## New and Emerging Plant Diseases Beech Bark Disease

- **Favorable Environment:** None
- **Insect Contributors**
  - Woolly beech scale  
(*Cryptococcus fagisuga*)
  - American beech scale  
(*Xylococcus betulae*)

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## New and Emerging Plant Diseases Beech Bark Disease

- **Control**
  - Limit movement of beech wood (firewood)
  - Remove trees in healthy stands
    - Eliminate more susceptible trees (older, structurally unsound, rough-barked)
    - Increase diversity of forest composition
  - Remove affected trees in diseased stands
    - Thins the stand potentially affecting scale levels
    - Limits tree fall/increases wood marketability

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## New and Emerging Plant Diseases Beech Bark Disease

- **Control**
  - Reduce tree stress
    - Water stress
    - Nutrient stress
    - Root disturbance
  - Manage scale infestations
    - Water sprays
    - Use insecticides/insecticidal soaps
  - Hope for eventual resistant varieties

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## New and Emerging Plant Diseases Phytoplasma Diseases

- **Examples**
  - Aster yellows
  - Ash yellows
- **Causes:** Miscellaneous phytoplasmas
- **Hosts**
  - Many herbaceous plants (aster yellows)
  - Ash, lilac (ash yellows)
  - “The more you look, the more you find.”

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## New and Emerging Plant Diseases Phytoplasma Diseases

- Favorable environment: None
- Transmission: Leafhoppers



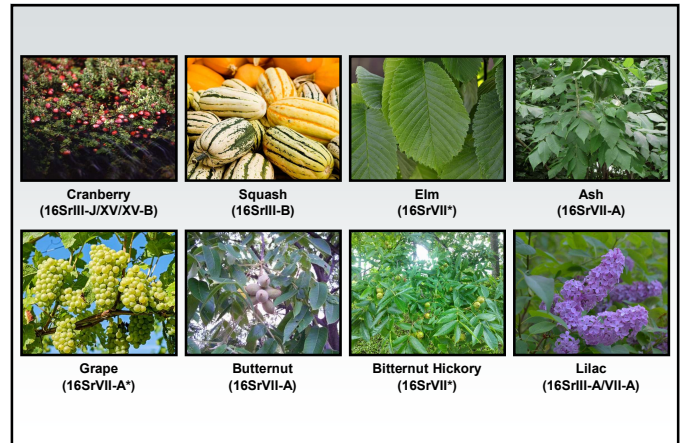
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## New and Emerging Plant Diseases Phytoplasma Diseases

- Control
  - Remove infected plants
  - Destroy infected materials
    - Compost
    - Bury
    - Burn (where allowed)
  - Avoid growing susceptible plants
  - Use insecticides for leafhopper control (?)

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## New and Emerging Plant Diseases Tobacco Rattle

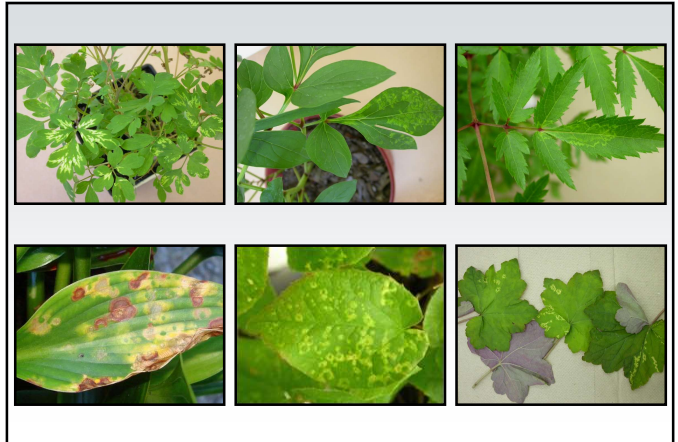
- Cause: *Tobacco rattle virus*
- Hosts
  - Ornamentals
    - Astilbe, bleeding heart, columbine, coral bells, daffodils, epimedium, gladiolus, hyacinth, marigold, peony, tulip, vinca
  - Vegetables
    - Beans, beet, pepper, potato, spinach
- Favorable environment: None

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## New and Emerging Plant Diseases Tobacco Rattle

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

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## New and Emerging Plant Diseases 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

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## New and Emerging Plant Diseases Tobacco Rattle

- **Control**
  - Decontaminate
    - 1% Sodium dodecyl sulfate (sodium lauryl sulfate) + 1% Alconox® (2½ Tbsp + 2¼ Tbsp/gal)
    - 20% low fat dry milk (Carnation®) + 0.1% polysorbate 20 (9½ cups + ¼ tsp/gal)
    - Trisodium phosphate (14 dry oz/gal)
    - Alcohol dip followed by flaming

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## New and Emerging Plant Diseases Tobacco Rattle

- **Control**
  - DO NOT use chemical controls on plants
  - DO NOT attempt to control stubby-root nematodes

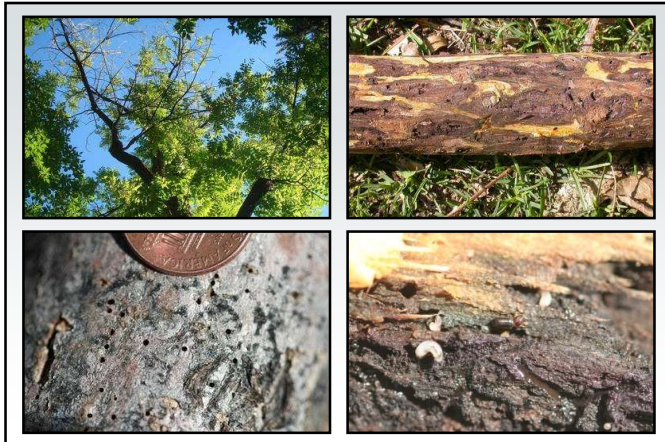
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## New and Emerging Plant Diseases Thousand Cankers Disease

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

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## New and Emerging Plant Diseases Thousand Cankers Disease

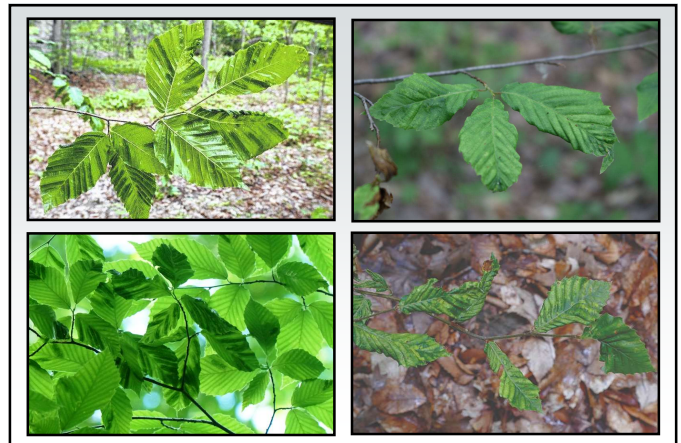
- **Control**
  - DO NOT transport walnut wood/products from areas known to have the disease
  - Remove and destroy affected trees (burn)
  - No effective fungicide strategies known
  - No effective insecticide strategies known
  - Contact the PDDC if you believe you have seen this disease

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## New and Emerging Plant Diseases Beech Leaf Disease

- **Cause:** *Litylenchus crenatae* subsp. *mccannii*
- **Hosts**
  - American beech
  - European beech
  - Asian beech
- **Favorable environment:** None

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## New and Emerging Plant Diseases Beech Leaf Disease

- **Control**
  - Limit movement of beech wood
  - Avoid symptomatic nursery stock
  - Remove affected trees
  - Hope for eventual resistant varieties

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## New and Emerging Plant 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  
<https://pddc.wisc.edu>  
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