

Responding to Horticulture Inquiries 2020

Diseases to Watch for in 2020

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



Diseases to Watch for in 2020 Ralstonia Wilt

- **Cause:** *Ralstonia solanacearum*
 - Many races/biovars
 - Race 3, biovar 2 (select agent)
- **Hosts**
 - Many herbaceous plants
 - Geranium (Fantasia® 'Pink Flare')
 - Potato
- **Favorable environment:** Warm weather



Diseases to Watch for in 2020 Ralstonia Wilt

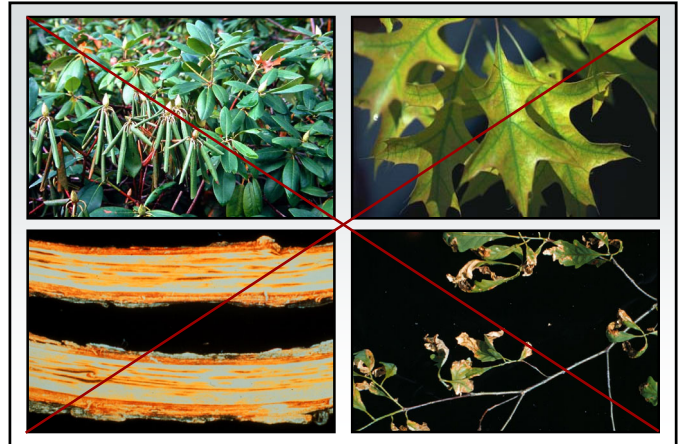
- **Control**
 - Start with clean propagation materials
 - Follow strict sanitation procedures when working with plant materials
 - Keep plants from different sources separated
 - Decontaminate pruning tools, surfaces, etc.
 - Sodium hypochlorite (bleach)
 - Hydrogen peroxide
 - Ammonium chloride
 - Protect/decontaminate hands

Diseases to Watch for in 2020 Ralstonia Wilt

- **Control**
 - Contact the PDDC if you believe you have seen this disease
 - WI DATCP/USDA APHIS will follow up
 - Confirm the disease
 - Remove plants (symptomatic and asymptomatic)
 - Remove other potentially contaminated plants
 - Remove contaminated plant debris
 - Decontaminate the greenhouse

Diseases to Watch for in 2020 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



Diseases to Watch for in 2020 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

Diseases to Watch for in 2020 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

Diseases to Watch for in 2020 Boxwood Blight

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



Diseases to Watch for in 2020 **Boxwood Blight**

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

Diseases to Watch for in 2020 **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'

Diseases to Watch for in 2020 **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

Diseases to Watch for in 2020 **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

Diseases to Watch for in 2020 **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

Diseases to Watch for in 2020 **Winter Injury/Winter Burn**

- **Causes**
 - Water stress
 - High winds
 - Extreme winter temperatures
 - Insufficient snow cover
 - Cycling winter temperatures
 - Excessive snow
 - Ice

Diseases to Watch for in 2020 Winter Injury/Winter Burn

- **Affected plants**

- Evergreens

- Needled (yew, Alberta spruce, arborvitae)
 - Broad-leafed (boxwood)

- Deciduous trees

- Fruit trees (apple, pear, cherry, plum, peach, apricot)
 - Maples (Japanese, Korean)
 - Redbud



Diseases to Watch for in 2020 Winter Injury/Winter Burn

- **Management**

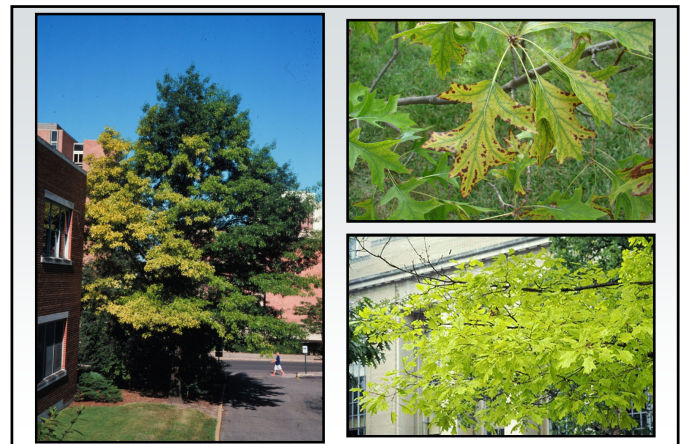
- Water trees and shrubs adequately
 - Plant trees and shrubs
 - Properly
 - In protected locations (sensitive plants)
 - Protect sensitive plants
 - Pray for
 - Lots of snow
 - Slow, gradual seasonal transitions

Diseases to Watch for in 2020 Chlorosis

- **Cause: Micronutrient (Fe or Mn) deficiency**

- **Affected plants**

- Oaks (especially pin oak)
 - Red Maples
 - Rhododendrons
 - Other woody (and herbaceous) plants





Diseases to Watch for in 2020 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

Diseases to Watch for in 2020 Rhizosphaera Needle Cast

- **Pathogens:** *Rhizosphaera kalkhoffii*
Rhizosphaera spp.
- **Look-Alike:** Stigmina Needle Cast
(*Stigmina* spp.)
- **Hosts (major)**
 - Colorado blue spruce
 - Other spruces: Black, Engelmann, Serbian, Sitka, white (Black Hills)

Diseases to Watch for in 2020 Rhizosphaera Needle Cast

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



Diseases to Watch for in 2020 Rhizosphaera Needle Cast

- **Control**
 - DO NOT plant Colorado blue spruce
 - DO NOT crowd trees when planting
 - Plant dwarf spruce varieties
 - Thin healthy branches to increase airflow

Diseases to Watch for in 2020 Rhizosphaera Needle Cast

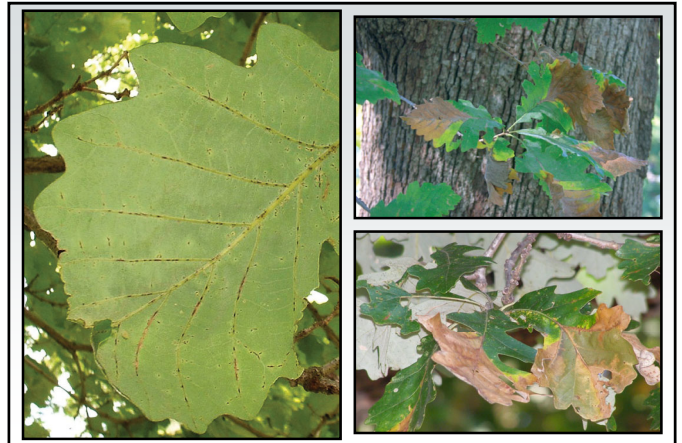
- **Control**
 - Prevent tree stress
 - Prune diseased branches
 - Decontaminate pruning tools
 - 70% alcohol
 - Commercial disinfectants
 - 10% bleach

Diseases to Watch for in 2020 Rhizosphaera Needle Cast

- **Control**
 - Use fungicides to prevent infections
 - Copper, chlorothalonil
 - Alternate active ingredients (FRAC Codes)
 - Start applications at bud break
 - Apply at 3-4 week intervals under favorable conditions

Diseases to Watch for in 2020 Bur Oak Blight

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



Diseases to Watch for in 2020 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

Diseases to Watch for in 2020 Bur Oak Blight

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

Diseases to Watch for in 2020 Viral Diseases

- **Pathogens**
 - Many (with more discovered all the time)
 - Wide host-range
 - Tobacco mosaic virus (TMV)
 - Cucumber mosaic virus (CMV)
 - Impatiens necrotic spot virus (INSV)
 - Tomato spotted wilt virus (TSWV)
 - Tobacco rattle virus (TRV)

Diseases to Watch for in 2020 Viral Diseases

- **Pathogens**
 - Narrow host-range
 - Hosta virus X (HVX)
 - Cymbidium mosaic virus (CyMV)
 - Odontoglossum ringspot virus (ORSV)
- **Favorable environment: None**

Diseases to Watch for in 2020 Viral Diseases

- **Transmission**
 - Mechanical
 - Touch (TMV)
 - Tools (TMV, CMV, INSV, TSWV, HVX, TRV, CyMV, ORSV)
 - Insects/Nematodes
 - Aphids (CMV)
 - Thrips (INSV, TSWV)
 - Stubby root nematode (TRV)
 - Plant parts/seed (TRV)



Diseases to Watch for in 2020 Viral Diseases

- **Control**
 - Buy plants from a reputable source
 - Inspect plants prior to purchase for disease
 - Test plants prior to purchase (Agdia, Inc. – <http://www.agdia.com>)
 - DO NOT smoke around plants
 - Control insects
 - Isolate infected plants/remove plant debris

Diseases to Watch for in 2020 Viral Diseases

- **Control**
 - Remove weed hosts
 - Decontaminate
 - 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 (9¼ cups + ¼ tsp/gal)
 - Alcohol dip followed by flaming

Diseases to Watch for in 2020 Viral Diseases

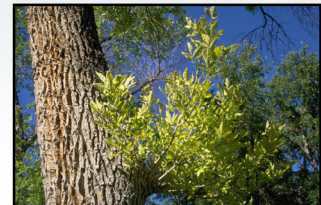
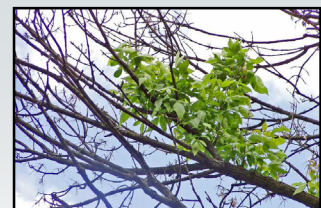
- **Control**
 - Wash hands, particularly if you smoke
 - DO NOT use chemical controls

Diseases to Watch for in 2020 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.”

Diseases to Watch for in 2020 Phytoplasma Diseases

- **Favorable environment: None**
- **Transmission: Leafhoppers**





Cranberry
(16SrIII-J/XV/XV-B)

Squash
(16SrIII-B)

Elm
(16SrVII*)

Ash
(16SrVII-A)



Grape
(16SrVII-A*)



Butternut
(16SrVII-A)



Bitternut Hickory
(16SrVII*)



Lilac
(16SrIII-A/VII-A)

Diseases to Watch for in 2020 Phytoplasma Diseases

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

Diseases to Watch for in 2020 Thousand Cankers Disease

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



Diseases to Watch for in 2020 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

Diseases to Watch for in 2020 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>
Follow on Facebook and Twitter @UWPDDC
Subscribe to the UWPDDCLearn listserv