

WAA Fall Conference 2014

Plant Disease Update 2014

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Plant Disease Update 2014 Winter Injury

- **Causes**
 - Historical drought stress (2012)
 - Cold winter temperatures
- **Affected plants**
 - Many woody ornamentals
 - Conifers (yews)
 - Fruit trees (apples, pears, cherries, plums)
 - Marginal plants (exotic maples)

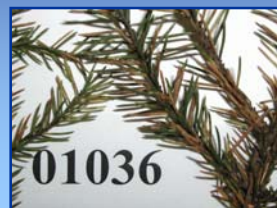


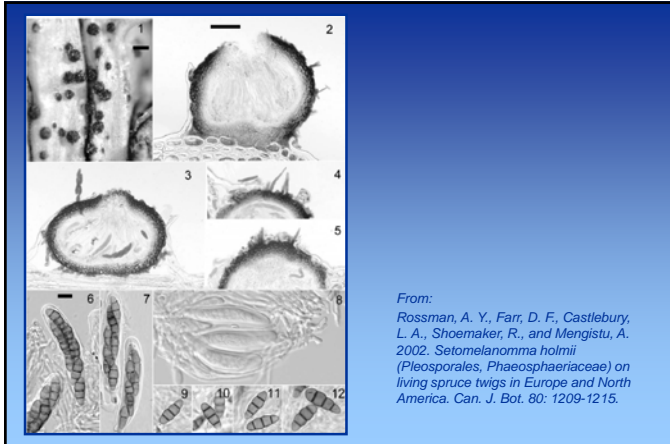
Plant Disease Update 2014 Winter Injury

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

Plant Disease Update 2014 Spruce Needle Drop

- **Cause:** Setomelanomma holmii (?)
- **Hosts**
 - Colorado blue spruce
 - Other spruces
- **Environmental trigger:** Stress (?)





**Plant Disease Update 2014
 Spruce Needle Drop**

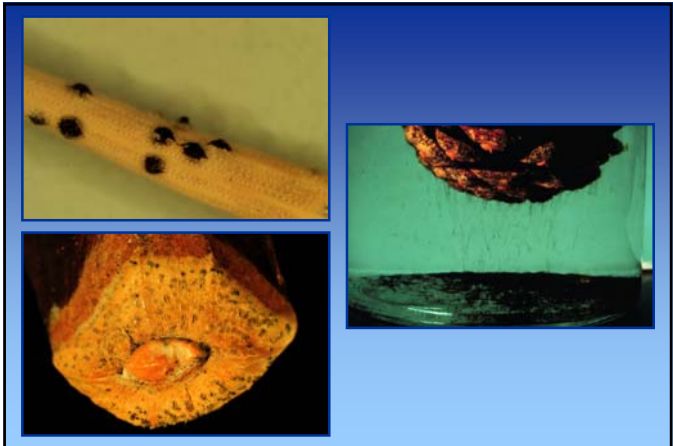
- **Control**
 - ?
 - Prune diseased branches
 - Prevent tree stress (?)

**Plant Disease Update 2014
 Diplodia (Sphaeropsis) Shoot Blight**

- **Pathogen:** *Diplodia pinea* (*Sphaeropsis sapinea*)
- **Hosts (major)**
 - Pines: Austrian
 - Other pines: red, jack, Scots, mugo
- **Hosts (minor)**
 - Other conifers: cedars, cypresses, firs, spruces, junipers, yews

**Plant Disease Update 2014
 Diplodia (Sphaeropsis) Shoot Blight**

- **Favorable environment**
 - Long periods of needle wetness
 - Drought



**Plant Disease Update 2014
Diplodia (Sphaeropsis) Shoot Blight**

- **Control**
 - DO NOT plant Austrian pines
 - Prevent tree stress, particularly water stress
 - Thin branches to increase airflow
 - Prune diseased branches
 - Remove infected cones

**Plant Disease Update 2014
Diplodia (Sphaeropsis) Shoot Blight**

- **Control**
 - Use fungicides to prevent infections
 - Thiophanate methyl, chlorothalonil
 - Alternate active ingredients (FRAC codes)
 - Bud break through shoot elongation
 - 14 day application interval

**Plant Disease Update 2014
Nectria Canker**

- **Pathogen:** *Nectria* spp.
- **Hosts**
 - Many woody ornamentals
 - Honey locust
 - Maple
- **Favorable environment**
 - Wounding
 - Wet weather conditions



**Plant Disease Update 2014
Nectria Canker**

- **Control**
 - Choose well-adapted trees and shrubs
 - Water and fertilize trees and shrubs properly
 - Reduce environmental stresses/injuries
 - Prune properly when maintenance pruning
 - Prune infected branches
 - Disinfect tools between pruning cuts
 - DO NOT use fungicides

Plant Disease Update 2014 Tar Spot

- **Causes**
 - Rhytisma acerinum
 - Rhytisma americanum
 - Rhytisma punctatum
- **Hosts**
 - Maples
 - Norway maple!
- **Favorable Environment:** Cool, wet weather



Plant Disease Update 2014 Tar Spot

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

Plant Disease Update 2014 Anthracnose

- **Causes**
 - Gloeosporium spp.
 - Discula spp.
 - Collectotrichum spp.
 - Other fungi

Plant Disease Update 2014 Anthracnose

- **Hosts**
 - Anything and everything
 - Ash
 - Maple
 - Oak
 - Sycamore
- **Environmental trigger**
 - Cool, moist conditions in May/June

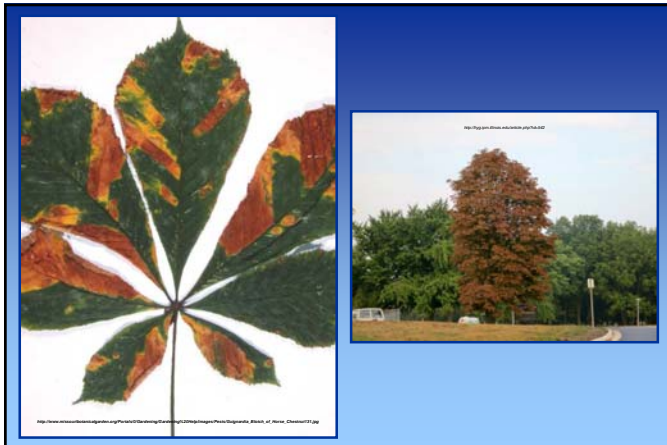


Plant Disease Update 2014 Anthracnose

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

Plant Disease Update 2014 Guignardia Blotch

- **Cause:** Guignardia aesculi
- **Hosts**
 - Horse-chestnut
 - Buckeye
- **Favorable Environment:** Cool, wet weather



Plant Disease Update 2014 Guignardia Blotch

- **Control**
 - **DO NOT panic**
 - **Remove/destroy diseased leaves**
 - **Use fungicides to prevent infections**
 - Chlorothalonil, mancozeb, thiophanate methyl
 - Alternate active ingredients (FRAC codes)
 - At bud break, 1/2 and full leaf expansion

Plant Disease Update 2014 Rhizosphaera Needle Cast

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

Plant Disease Update 2014 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



Plant Disease Update 2014 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

Plant Disease Update 2014 Rhizosphaera Needle Cast

- **Control**
 - Use fungicides to prevent infections
 - Copper-containing fungicides, chlorothalonil
 - Alternate active ingredients (FRAC codes)
 - Bud break
 - 3-4 week application interval under favorable conditions

Plant Disease Update 2014 Verticillium Wilt

- **Causes**
 - Verticillium dahliae
 - Verticillium albo-atrum
- **Hosts**
 - Many woody ornamentals (maple, ash, redbud, smokebush)
 - Potential new hosts (Ptelea, Heptacodium, Cephalanthus)
 - Many herbaceous plants and vegetables

Plant Disease Update 2014 Verticillium Wilt

- **Environmental trigger**
 - Cool, wet weather (infection)
 - Drought (symptom development)





**Plant Disease Update 2014
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

**Plant Disease Update 2014
Verticillium Wilt**

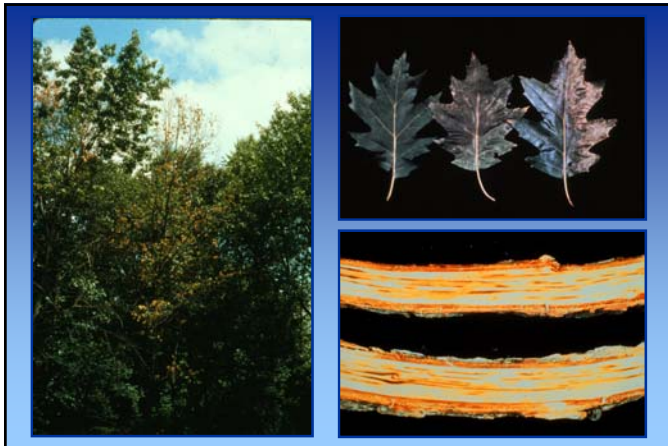
- **Control**
 - Use “resistant” plants
 - CONIFERS: Pines, spruces, firs, junipers
 - DECIDUOUS TREES/SHRUBS: Beech, birch, ginkgo, hackberry, hawthorn, hickory, honey locust, mountain ash, white oak, bur oak, poplar, serviceberry, sycamore, willow

**Plant Disease Update 2014
Verticillium Wilt**

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

**Plant Disease Update 2014
Oak Wilt**

- **Cause:** Ceratocystis fagacearum (Chalara sp.)
- **Hosts**
 - About 20 species of oak
 - Black/red oak group: northern red, northern pin, black
 - White oak group: white, bur, swamp white
 - Chinese chestnut
- **Environmental trigger :** Cool, wet conditions



Plant Disease Update 2014 Oak Wilt

- **Transmission**
 - **Oak bark beetles**
 - *Pseudopityophthorus ninutissimus*
 - *Pseudopityophthorus pruinosis*
 - **Sap beetles**
 - *Carpophilus* spp.
 - *Colopterus* spp.
 - *Cryptarcha* spp.
 - *Epuraea* spp.
 - *Clischrochilus* spp.

Plant Disease Update 2014 Oak Wilt

- **Transmission**
 - **Root grafts**
 - Major method of movement in clumps of oaks
 - Can form between trees in the same subgenus
 - Black/red oak group
 - White oak group
 - Movement of up to 20-25 ft/year



Plant Disease Update 2014 Oak Wilt

- **Control**
 - **DO NOT** prune or wound oaks from bud break to 2-3 weeks past full leaf development
 - **Disrupt root grafts**
 - Mechanically (vibratory plow or trenching machine)
 - Chemically (soil fumigant)
 - Physical barriers
 - **Remove diseased (and healthy) trees**

Plant Disease Update 2014 Oak Wilt

- **Control**
 - **Be careful using oak wood**
 - Remove bark
 - Cover wood
 - **Use fungicide injections**
 - Propiconazole
 - Prophylactic or therapeutic
 - Every 12-24 months

***Plant Disease Update 2014
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@plantpath.wisc.edu
<http://pddc.wisc.edu>
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