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)

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

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

Favorable environment

- Long periods of needle wetness
- Drought

From:
**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

**Pathogen: Nectria spp.**

- **Hosts**
  - Many woody ornamentals
  - Honey locust
  - Maple
- **Favorable environment**
  - Wounding
  - Wet weather conditions

**Control**

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

**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
  - Disinfest 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

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**Anthracnose**

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

- **Hosts**
  - Anything and everything
  - Ash
  - Maple
  - Oak
  - Sycamore

- **Environmental trigger**
  - Cool, moist conditions in May/June

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**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**

- 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

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

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**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

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

- 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

**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

- **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

- 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
Transmission

- Oak bark beetles
  - *Pseudopityophthorus ninutissimus*
  - *Pseudopityophthorus pruinosus*

- Sap beetles
  - *Carpophilus* spp.
  - *Colopterus* spp.
  - *Cryptarcha* spp.
  - *Epuraea* spp.
  - *Clischrochilus* spp.

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

- **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**
  - **Oak Wilt**

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  - **Oak Wilt**

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  - **Oak Wilt**

- **Plant Disease Update 2014**
  - **Oak Wilt**
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