

Think Spring Garden Seminar 2016

Wrestling with Trees and Shrub Diseases

Brian D. Hudelson

Department of Plant Pathology

University of Wisconsin-Madison/Extension



Think Spring Garden Seminar 2016 Tar Spot

- **Causes:** *Rhytisma americanum*
Rhytisma acerinum
- **Hosts:** Maples
- **Favorable environment:** Cool, wet weather



Think Spring Garden Seminar 2016 Tar Spot

- **Control**
 - **DO NOT panic**
 - **Remove and destroy diseased leaves**
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - **Use fungicides to prevent infections**
 - Copper-containing fungicides
 - Apply at bud break, 1/2 and full leaf expansion

Think Spring Garden Seminar 2016 Scab (Apple and Pear)

- **Cause:** *Venturia inaequalis* (*V. pirina*)
- **Hosts**
 - Apple
 - Crabapple
 - Pear
 - Mountain ash
- **Favorable environment:** Cool, wet weather



Think Spring Garden Seminar 2016 Scab (Apple and Pear)

- **Control**
 - Plant resistant varieties
 - Remove and destroy diseased leaves
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - Thin trees to promote air flow

Think Spring Garden Seminar 2016 Scab (Apple and Pear)

- **Control**
 - Use fungicides to prevent infections
 - Chlorothalonil, copper, mancozeb, myclobutanil, propiconazole, thiophanate-methyl, sulfur
 - Alternate active ingredients (FRAC codes)
 - From bud break through the end of favorable weather
 - Apply at 7-14 day intervals

Think Spring Garden Seminar 2016 Powdery Mildews

- **Causes**
 - *Erysiphe* spp. – *Microsphaera* spp.
 - *Uncinula* spp. – *Sphaerotheca* spp.
 - *Phyllactinia* spp. – *Podosphaera* spp.
 - *Blumeria* spp. – *Brasiliomyces* spp.
 - *Oidium* spp. – *Ovulariopsis* spp.
- **Hosts**
 - Virtually everything (BUT conifers)
- **Favorable environment: High humidity**



Think Spring Garden Seminar 2016 Powdery Mildews

- **Control**
 - Remove diseased plant material and debris
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - Reduce humidity
 - Plant less densely
 - Thin existing stands
 - Use resistant cultivars/varieties

Think Spring Garden Seminar 2016 Powdery Mildews

- **Control**
 - Use fungicides to prevent infections
 - Dinocap, dithiocarbamates, myclobutanil, triadimefon, triforine, sulfur or thiophanate-methyl
 - Baking soda (1.5 Tbsp/gal) and light weight horticultural oil (3 Tbsp/gal)
 - Alternate active ingredients (FRAC codes)
 - Apply when humidity >60-70%
 - Apply at 7-14 day intervals

Think Spring Garden Seminar 2016 Rhizosphaera Needle Cast

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

Think Spring Garden Seminar 2016 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



Think Spring Garden Seminar 2016 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

Think Spring Garden Seminar 2016 Rhizosphaera Needle Cast

- Control
 - Use fungicides to prevent infections
 - Copper-containing fungicides, chlorothalonil
 - Alternate active ingredients (FRAC codes)
 - Apply starting at bud break and at 3-4 week intervals thereafter under favorable conditions

Think Spring Garden Seminar 2016 “Cedar-Apple” Rusts

- Cause: Gymnosporangium spp.
- Hosts
 - Junipers
 - Woody rosaceous plants
(apple, crabapple, hawthorn, quince, pear!)
- Favorable environment: Wet weather



Think Spring Garden Seminar 2016 "Cedar-Apple" Rusts

- **Control**
 - Grow only the juniper or rosaceous host
 - Use resistant cultivars/varieties
 - Remove galls

Think Spring Garden Seminar 2016 "Cedar-Apple" Rusts

- **Control**
 - Use fungicides to prevent infections
 - Ferbam, triadimefon
 - Alternate active ingredients (FRAC codes)
 - Mid May through mid June (rosaceous hosts)
 - Early July through August (juniper hosts)
 - Apply at 7-21 day intervals

Think Spring Garden Seminar 2016 Black Knot

- **Cause:** Apiosporina morbos
- **Hosts**
 - Prunus species
 - Plums
 - Cherries
- **Favorable environment:** Wet weather



Think Spring Garden Seminar 2016 Black Knot

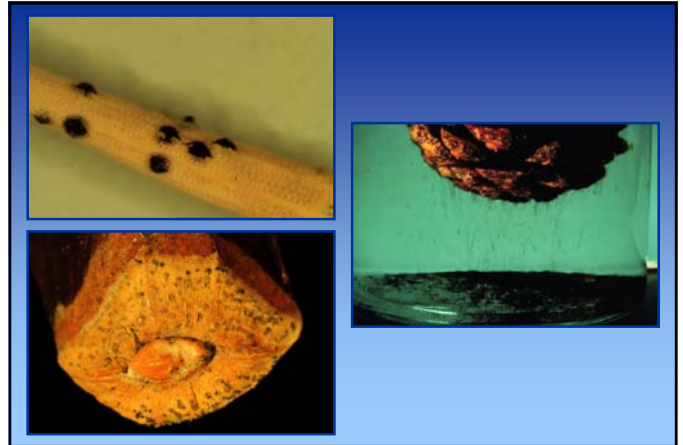
- **Control**
 - DO NOT plant infected Prunus stock
 - Buy black knot-resistant varieties if available (Prunus 'Accolade', Prunus sargentii, Prunus maackii)
 - Remove volunteer plums/cherries
 - Prune diseased branches
 - DO NOT use fungicides

Think Spring Garden Seminar 2016 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

Think Spring Garden Seminar 2016 Diplodia (Sphaeropsis) Shoot Blight

- Favorable environment
 - Long periods of needle wetness
 - Drought



Think Spring Garden Seminar 2016 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

Think Spring Garden Seminar 2016 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

Think Spring Garden Seminar 2016 Verticillium Wilt

- **Causes:** Verticillium dahliae
(Other species)
- **Hosts**
 - Many woody ornamentals
 - Common: Maple, ash, redbud, smokebush
 - “New”: Seven son flower, wafer-ash, buttonbush
 - Many herbaceous plants
 - Many vegetables (tomato, potato, eggplant)
- **Favorable environment:** Cool, wet weather



Think Spring Garden Seminar 2016 Verticillium Wilt

- **Control**
 - Avoid Verticillium-infested areas
 - Pretest soils/mulches/composts for the presence of Verticillium
 - 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

Think Spring Garden Seminar 2016 Verticillium Wilt

- **Control**
 - Keep broad-leaf weeds under control
 - Avoid municipal mulches
 - Prevent plant stress
 - Prune diseased (wilted) areas
 - Decontaminate pruning tools
 - Make infected trees comfortable until they die

Think Spring Garden Seminar 2016 Verticillium Wilt

- **Control**
 - Remove diseased plants
 - Destroy infected materials
 - Burning (where allowed)
 - Landfilling
 - Hot composting?

Think Spring Garden Seminar 2016 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>
Follow on Twitter @UWPDDC