Top Ten Plant Diseases of 2020 Gymnosporangium Rusts

• Pathogens: Gymnosporangium spp.
  – Gymnosporangium juniperi-virginianae (Cedar-apple rust)
  – Gymnosporangium globosum (Cedar-hawthorn rust)
  – Gymnosporangium clavipes (Cedar-quince rust)

• Hosts
  – Junipers
  – Rosaceous plants
    • Apple, crabapple
    • Hawthorn
    • Quince
    • Pear
    • Serviceberry

• Favorable environment: Wet weather

• Control
  – Grow only junipers or rosaceous hosts
  – Use resistant cultivars/varieties
    • “Juniper Diseases” (https://store.extension.iastate.edu/Product/Juniper-Diseases)
    • “Home Fruit Cultivars for Northern Wisconsin” (https://learningstore.extension.wisc.edu/)
    • “Home Fruit Cultivars for Southern Wisconsin” (https://learningstore.extension.wisc.edu/)
  – Remove galls
  – Decontaminate pruning tools (70% alcohol, disinfectants, 10% bleach)
  – Destroy infected materials
    • Burn (where allowed)
    • Deep bury
Top Ten Plant Diseases of 2020
Gymnosporangium Rusts

- Control
  - Use fungicides to prevent infections (?)
  - Treat rosaceous hosts
  - Chlorothalonil, copper, ferbam, mancozeb, propiconazole, sulfur, and triadimefon
  - Alternate active ingredients (FRAC Codes)
  - Apply when flowers first show color, when half of flowers open, at petal fall, 7 to 10 days after petal fall, and 10 to 14 days later

Top Ten Plant Diseases of 2020
Elderberry Rust

- Pathogen: *Puccinia bolleyana*
- Hosts
  - Elderberry
  - Sedges
- Favorable environment: Wet weather

Top Ten Plant Diseases of 2020
Elderberry Rust

- Control
  - Prune out galls
  - Decontaminate pruning tools
    (70% alcohol, disinfectants, 10% bleach)
  - Remove sedges
  - DO NOT use fungicides

Top Ten Plant Diseases of 2020
Septoria Leaf Spot

- Cause: *Septoria* sp.
- Host: Lilac
- Favorable environment: Wet weather
Top Ten Plant Diseases of 2020

Septoria Leaf Spot

- Control
  - Space lilacs to promote good air flow
  - Routinely thin shrubs
  - Decontaminate pruning tools (70% alcohol, disinfectants, 10% bleach)
  - Avoid overhead watering
  - Reduce stress

- Management

Top Ten Plant Diseases of 2020

Septoria Leaf Spot

- Control
  - Destroy infected materials
    - Burn (where allowed)
    - Deep bury
    - Hot compost
  - Use fungicides to prevent infections
    - Chlorothalonil, copper, mancozeb
    - Apply from bud break through the end of favorable weather
    - Apply at 7 to 14-day intervals

Top Ten Plant Diseases of 2020

Planting-Related Decline

- Causes
  - Impatience
  - Improper plant techniques
    - Overly deep planting
    - Failure to remove burlap, wire basket, wires
    - Lack of watering post installation

- Hosts: Any tree or shrub

- Management
  - Plant small trees
  - Plant bare-root trees
  - Prepare balled and burlaped trees properly
    - Remove burlap
    - Remove wire basket
    - Remove wires/cords
    - Expose the root flare

Causes

- Impatience
- Improper plant techniques
  - Overly deep planting
  - Failure to remove burlap, wire basket, wires
  - Lack of watering post installation

- Hosts: Any tree or shrub

- Management
  - Plant small trees
  - Plant bare-root trees
  - Prepare balled and burlaped trees properly
    - Remove burlap
    - Remove wire basket
    - Remove wires/cords
    - Expose the root flare
Top Ten Plant Diseases of 2020

Management
– Mulch properly
  • Use high quality mulches
  • Use the right amount of mulch
– Water properly
  • Apply two inches of water per week
  • Water from bud break through summer and into the fall
  • Continue this watering for at least three years

Water properly
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– Water from bud break through summer and into the fall
– Continue this watering for at least three years

Top Ten Plant Diseases of 2020

Fire Blight

• Cause: Erwinia amylovora
• Hosts
  – Many woody rosaceous plants
  – Apple, crabapple, pear, hawthorn, mountain-ash, cotoneaster
• Favorable environment
  – Wet weather (but not too wet)
  – Hail (or other wounding)

Control
– Plant resistant varieties
  • “Home Fruit Cultivars for Northern Wisconsin” (https://learningstore.uwex.edu/)
  • “Home Fruit Cultivars for Southern Wisconsin” (https://learningstore.uwex.edu/)
  • “Top Ornamental Crabapples for Wisconsin” (https://pddc.wisc.edu/fact-sheet-listing-all/)
  – Prune diseased branches

Control
– Decontaminate pruning tools (70% alcohol, disinfectants, 10% bleach)
– Destroy infected materials
  • Burn (where allowed)
  • Deep bury
– DO NOT over-fertilize with nitrogen

Control
– Use bactericides to prevent infections (?)
  • Copper, streptomycin
  • Apply
    – Pre-bloom (copper)
    – During flowering (streptomycin)
  • Apply every
    – Two applications at spaced 4 days apart (copper)
    – Multiple applications spaced 3-4 days apart (streptomycin)
Top Ten Plant Diseases of 2020

Anthracnose

- Causes
  - *Gloeosporium* spp.
  - *Discula* spp.
  - *Colletotrichum* spp.
  - Many other fungi
- Hosts
  - Any deciduous tree
  - Ash, maple, oak
  - Sycamore
- Favorable environment: Cool, wet weather

Top Ten Plant Diseases of 2020

Anthracnose

- Control
  - DO NOT panic
  - Remove/destroy diseased leaves and branches
    - Burn (where allowed)
    - Deep bury
    - Hot compost

Top Ten Plant Diseases of 2020

Scab (Apple and Pear)

- Causes
  - *Venturia inaequalis*
  - *Venturia pirina*
- Hosts
  - Apple/crabapple
  - Pear
  - Mountain ash
- Favorable environment: Cool, wet weather

Top Ten Plant Diseases of 2020

Anthracnose

- Control
  - Use fungicides to prevent infections
    - Copper, chlorothalonil, mancozeb, thiophanate-methyl
    - Alternate active ingredients (FRAC codes)
    - Apply at bud break, 1/2 and full leaf expansion
Top Ten Plant Diseases of 2020
Scab (Apple and Pear)

- Control
  - Plant resistant varieties
    - “Home Fruit Cultivars for Northern Wisconsin” (https://learningstore.uwex.edu/)
    - “Home Fruit Cultivars for Southern Wisconsin” (https://learningstore.uwex.edu/)
    - “Top Ornamental Crabapples for Wisconsin” (https://pddc.wisc.edu/fact-sheet-listing-all/)

- Control
  - Remove/destroy diseased leaves
    - Burn (where allowed)
    - Deep bury
    - Hot compost
  - Thin trees to promote air flow
  - Decontaminate pruning tools
    (70% alcohol, disinfectants, 10% bleach)

Top Ten Plant Diseases of 2020
Scab (Apple and Pear)

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

Top Ten Plant Diseases of 2020
Chlorosis

- Cause: Micronutrient (Fe or Mn) deficiency
- Affected plants
  - Oaks (especially pin oak)
  - Red maple
  - Rhododendron
  - White pine
  - Blueberries
  - Other woody (and herbaceous) plants
### Top Ten Plant Diseases of 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

#### “Boxwood Dieback”

- **Causes**
  - Winter injury/winter burn
  - Small animal injury
  - Fungal pathogens
    - *Verticillium* sp. (*Verticillium wilt*)
    - *Phytophthora* sp., *Pythium* sp., *Rhizoctonia* sp. (*root rots*)
    - *Volutella buxi* (*Volutella blight*)
    - *Calonectria pseudonaviculata* (box blight)
    - (*Cylindrocladium pseudonaviculatum*)

- **Host:** Boxwood

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#### Top Ten Plant Diseases of 2020

#### “Boxwood Dieback”

- **Control**
  - Water adequately
    - Apply one inch of water per week
    - Water from bud break through summer and into the fall up until ground freeze/snow
  - Protect plants from winter winds
  - Reduce other stresses
  - Control small animal populations

#### Top Ten Plant Diseases of 2020

“Boxwood Dieback”

- **Control**
  - Grow boxwood blight resistant varieties
    - Hybrid boxwood ‘Green Gem’
    - Common boxwood ‘Katerberg’ North Star®
    - Korean littleleaf boxwood
      - ‘Eseles’ ‘Wedding Ring’
      - ‘Franklin’s Gem’
      - ‘Winter Gem’
      - ‘Wintergreen’
Top Ten Plant Diseases of 2020
“Boxwood Dieback”

• Control
  – Prune out diseased branches
  – Disinfect pruning tools
    (70% alcohol, disinfectants, 10% bleach)
  – Remove and destroy infected plants
    • Burn (where allowed)
    • Haul to your local municipal composting site

Top Ten Plant Diseases of 2020
“Boxwood Dieback”

• Control
  – Use fungicides treatments
    • Chlorothalonil, mancozeb, thiophanate-methyl
    • 7 day application intervals
    • Alternate active ingredients (FRAC codes)
  – Contact the PDDC if you believe you have found box blight!

Top Ten Plant Diseases of 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)

Top Ten Plant Diseases of 2020
Rhizosphaera Needle Cast

• Hosts (minor)
  – Pines: Austrian, mugo, eastern white pine
  – Douglas fir
  – Hemlock
  – Balsam fir and other firs
• Favorable environment
  – Wet weather
  – High humidity

Top Ten Plant Diseases of 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
  – Prevent tree stress
  – Prune diseased branches
• Control
  – Decontaminate pruning tools
    (70% alcohol, disinfectants, 10% bleach)
  – 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

Top Ten Plant Diseases of 2020
Rhizosphaera Needle Cast

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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