Advanced Master Gardener Training

Deciduous Tree and Shrub Diseases

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Deciduous Tree and Shrub Diseases
Powdery Mildews

- Causes
  - *Erysiphe* spp.
  - *Uncinula* spp.
  - *Phyllactinia* spp.
  - *Blumeria* spp.
  - *Oidium* spp.
  - *Microsphaera* spp.
  - *Sphaerotheca* spp.
  - *Podosphaera* spp.
  - *Brasiliomyces* spp.
  - *Ovulariopsis* spp.

Deciduous Tree and Shrub Diseases
Powdery Mildews

- Hosts
  - Virtually everything
  - Not conifers
- Favorable environment: High humidity

Deciduous Tree and Shrub Diseases
Powdery Mildews

- Control
  - Remove/destroy diseased leaves
    - Burn (where allowed)
    - Deep bury
    - Hot compost
  - Reduce humidity
    - Plant less densely
    - Thin canopies
  - Use resistant cultivars/varieties

Deciduous Tree and Shrub Diseases
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

Deciduous Tree and Shrub Diseases
Tar Spot

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




Deciduous Tree and Shrub Diseases
Tar Spot

- Control
  - DO NOT panic
  - Remove/destroy diseased leaves
    - Burn (where allowed)
    - Deep bury
    - Hot compost
  - Use fungicides to prevent infections
    - Copper
    - Apply 3 applications: at bud break, 1/2 expansion of leaves, full leaf expansion

Deciduous Tree and Shrub Diseases
Anthracnose

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




Deciduous Tree and Shrub Diseases
Anthracnose

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

Deciduous Tree and Shrub Diseases
Anthracnose

- Control
  - Use fungicides to prevent infections
    - Copper-containing fungicides, chlorothalonil, mancozeb, thiophanate methyl
    - Alternate active ingredients (FRAC codes)
    - Apply 3 applications: at bud break, 1/2 expansion of leaves, full leaf expansion

Deciduous Tree and Shrub Diseases
Black Spot

- Cause: *Marssonina rosae*
- Host: Rose
- Favorable environment: Cool, wet weather

Deciduous Tree and Shrub Diseases
Black Spot

- Control
  - Plant resistant rose varieties
  - Promote rapid drying of leaves and canes
    - DO NOT overcrowd plants
    - Prune to thin established plants
  - DO NOT overhead water
  - DO NOT overwater

Deciduous Tree and Shrub Diseases
Black Spot

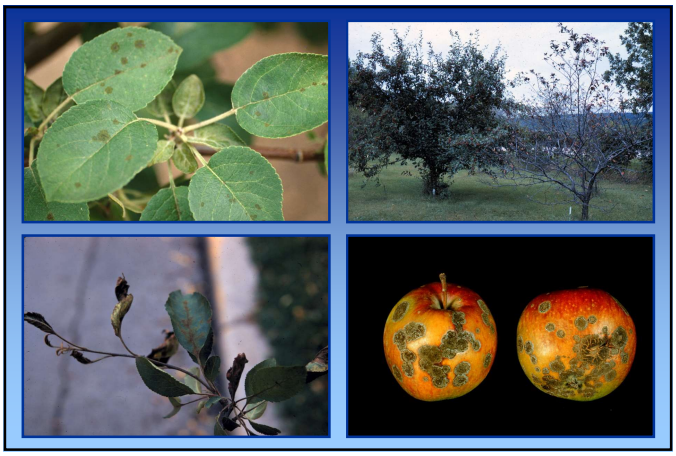
- Control
  - Remove/destroy diseased leaves and canes
    - Burn (where allowed)
    - Deep bury
    - Hot compost
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach

Deciduous Tree and Shrub Diseases
Black Spot

- Control
  - Use fungicides to prevent infections
    - Chlorothalonil, copper-containing fungicides, mancozeb, maneb, myclobutanil, propiconazole, thiophanate-methyl
    - Neem oil
    - Baking soda (1.5 Tbsp/gal) and light weight horticultural oil (3 Tbsp/gal)
    - Alternate active ingredients (FRAC Codes)
    - Apply at 7-14 day intervals

Deciduous Tree and Shrub Diseases
Scab (Apple and Pear)

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



Deciduous Tree and Shrub Diseases
Scab (Apple and Pear)

- Control
  - Plant resistant varieties
    - "Growing Apples (Pears) in Wisconsin" (https://learningstore.uwex.edu/)
  - Remove/destroy diseased leaves
    - Burn (where allowed)
    - Deep bury
    - Hot compost
  - Thin trees to promote air flow

Deciduous Tree and Shrub Diseases
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 7-14 day intervals

Deciduous Tree and Shrub Diseases
Taphrina Diseases of Stone Fruits

- Causes
  - *Taphrina deformans* (peach leaf curl)
  - *Taphrina cerasi* (cherry leaf curl)
  - *Taphrina communis* (plum pockets)

Deciduous Tree and Shrub Diseases
Taphrina Diseases of Stone Fruits

- Host
  - Peach, nectarine (peach leaf curl)
  - Cherry (cherry leaf curl)
  - Plum (plum pockets)
- Favorable environment: Wet weather

Deciduous Tree and Shrub Diseases
Taphrina Diseases of Stone Fruits

- Control
  - Remove and destroy symptomatic fruits
    - Burn (where allowed)
    - Bury
    - Hot compost
  - Prune/thin trees to improve air flow

Deciduous Tree and Shrub Diseases
Taphrina Diseases of Stone Fruits

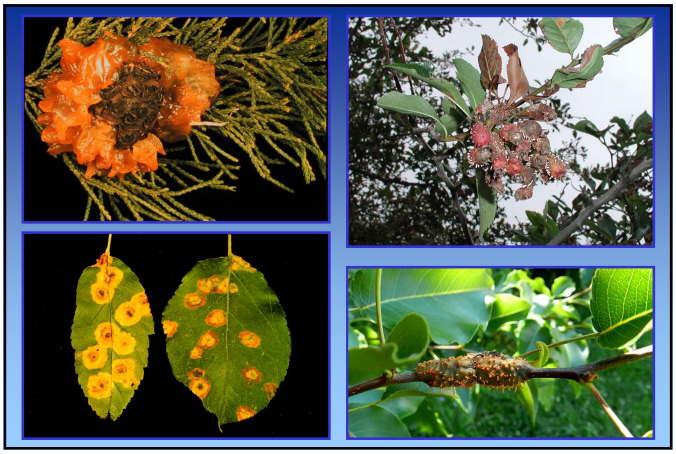
- Control
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach
  - Use fungicides to prevent infections
    - Chlorothalonil, copper, ferbam
    - Apply after leaf fall and/or before leaf emergence

Deciduous Tree and Shrub Diseases
Gymnosporangium Rusts

- Causes
  - *Gymnosporangium juniperi-virginianae* (Cedar-apple rust)
  - *Gymnosporangium globosum* (Cedar-hawthorn rust)
  - *Gymnosporangium clavipes* (Cedar-quince rust)

Deciduous Tree and Shrub Diseases
Gymnosporangium Rusts

- Hosts
  - Junipers
  - Woody rosaceous plants (apple, crabapple, hawthorn, quince, pear, serviceberry)
- Favorable environment
  - Cool to moderate temperatures
  - Wet



Deciduous Tree and Shrub Diseases
Gymnosporangium Rusts

- Control
  - Grow only the juniper or rosaceous host
  - Use resistant cultivars/varieties
    - "Juniper Diseases" (https://store.extension.iastate.edu/ Product/ Juniper-Diseases)
  - Remove galls

Deciduous Tree and Shrub Diseases
Gymnosporangium Rusts

- Control
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach
  - Destroy infected materials
    - Burn (where allowed)
    - Deep bury

Deciduous Tree and Shrub Diseases
Gymnosporangium Rusts

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

Deciduous Tree and Shrub Diseases
Black Knot

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

Deciduous Tree and Shrub Diseases
Black Knot

- Control
  - DO NOT plant infected Prunus stock
  - Buy black knot-resistant varieties if available
    - Accolade flowering cherry (Prunus 'Accolade')
    - Sargent's cherry (Prunus sargentii)
    - Amur chokecherry (Prunus maackii)
  - Remove volunteer plums/cherries
  - Prune diseased branches

Deciduous Tree and Shrub Diseases
Black Knot

- Control
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach
  - Destroy infected materials
    - Burn (where allowed)
    - Deep bury
  - DO NOT use fungicides

Deciduous Tree and Shrub Diseases
Crown Gall

- Cause
  - *Agrobacterium tumefaciens*
  - *Agrobacterium vitis*
- Hosts
  - Plants in 93 plant families
  - Trees and shrubs (deciduous and coniferous)
  - Herbaceous plants
- Favorable environment: None

Deciduous Tree and Shrub Diseases
Crown Gall

- Control
  - DO NOT buy infected plant
  - Buy well-adapted, winter-hardy plants
  - Avoid wounding plants during transplant
  - Consider root dips of *A. radiobacter*
  - Prune out galls

Deciduous Tree and Shrub Diseases
Crown Gall

- Control
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach
  - Remove plants (including roots) and soil
  - Destroy infected materials
    - Burn (where allowed)
    - Landfill

Deciduous Tree and Shrub Diseases
Crown Gall

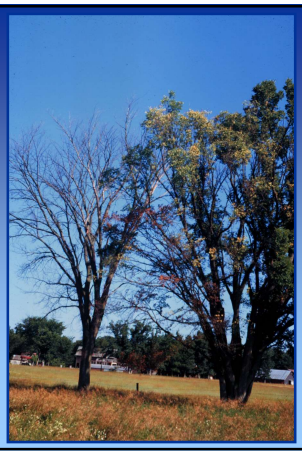
- Control
  - Plant nonsusceptible plants
  - DO NOT use bactericides

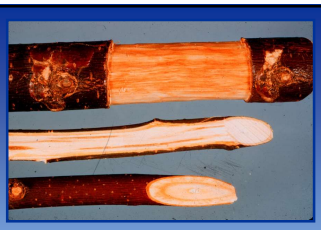
Deciduous Tree and Shrub Diseases
Dutch Elm Disease

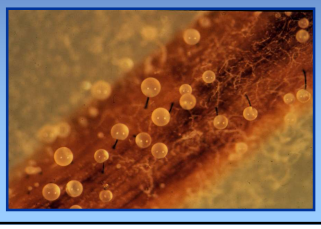
- Causes
  - *Ophiostoma ulmi (Ceratocystis ulmi)*
  - *Ophiostoma novo-ulmi*
  - *Pesotum ulmi (Graphium ulmi)*
- Hosts
  - High susceptibility
    - American, Belgian, English, red, rock, September, European white, winged

Deciduous Tree and Shrub Diseases
Dutch Elm Disease

- Hosts
  - Intermediate susceptibility
    - Cedar, European field (smooth-leaf), wych (Scots)
  - Low susceptibility
    - Siberian, Chinese
- Favorable environment
  - Cool, wet conditions (for infection)
  - Hot, dry weather (for symptom development)







Deciduous Tree and Shrub Diseases
Dutch Elm Disease

- Transmission
  - Elm bark beetles
    - *Scolytus multistriatus* (European)
    - *Hylurgopinus rufipes* (Native)
  - Root grafts
    - Major method of movement in clumps of elms
    - *Ophiostoma* spp. can reach the roots during the first season of infection

Deciduous Tree and Shrub Diseases
Dutch Elm Disease

- Control
  - Remove diseased elms
  - Disrupt root grafts
    - Mechanically (vibratory plow or trenching machine)
    - Chemically (soil fumigant)
    - Physical barriers
  - Be careful using elm wood
    - Remove bark
    - Cover wood

Deciduous Tree and Shrub Diseases
Dutch Elm Disease

- Control
  - Prune diseased branches
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach

Deciduous Tree and Shrub Diseases
Dutch Elm Disease

- Control
  - Use fungicides injections
    - Propiconazole, thiabendazole
    - Prophylactic or therapeutic
    - Every 12-24 months

Deciduous Tree and Shrub Diseases
Dutch Elm Disease

- Control
  - Plant resistant elms
    - Crosses between American and other elms
    - True American elms
      - American Liberty
      - Independence
      - Princeton
      - New Harmony
      - Valley Forge
      - Others

Deciduous Tree and Shrub Diseases
Dutch Elm Disease

- Control
  - Treatments of dubious use
    - Tracing
    - *Verticillium dahliae*

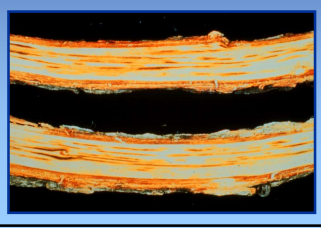
Deciduous Tree and Shrub Diseases
Oak Wilt

- Cause
  - *Bretziella fagacearum* (*Ceratocystis fagacearum*)
  - *Chalara* sp.
- Hosts
  - Red oak group: Red, black, pin
  - White oak group: White, bur, swamp white
  - Chinese chestnut

Deciduous Tree and Shrub Diseases
Oak Wilt

- Favorable environment
  - Cool, wet conditions (for infection)
  - Hot, dry weather (for symptom development)



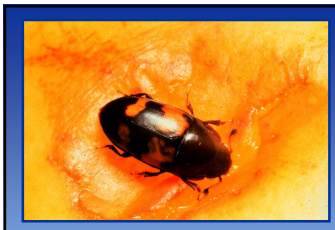


Deciduous Tree and Shrub Diseases
Oak Wilt

- Transmission
  - Oak bark beetles
    - Pseudopityophthorus minutissimus
    - Pseudopityophthorus pruinosus
  - Sap beetles
    - Carpophilus spp.
    - Colopterus spp.
    - Cryptarcha spp.
    - Epuraea spp.
    - Clischrochilus spp.

Deciduous Tree and Shrub Diseases
Oak Wilt

- Transmission
  - Root grafts
    - Major method of movement in clumps of oaks
    - Form between trees in the same group
      - Red oak group: Red, black, pin
      - White oak group: White, bur, swamp white
    - Movement of up to 20-25 ft/year




Deciduous Tree and Shrub Diseases
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
    - "Oak Wilt Management: What are the Options?" (https://learningstore.uwex.edu)

Deciduous Tree and Shrub Diseases
Oak Wilt

- Control
  - Remove diseased (and healthy) trees
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach
  - Be careful using oak wood
    - Remove bark
    - Cover wood

Deciduous Tree and Shrub Diseases
Oak Wilt

- Control
  - Use fungicide injections
    - Propiconazole
    - Prophylactic or therapeutic
    - Every 12-24 months

Deciduous Tree and Shrub Diseases
Verticillium Wilt

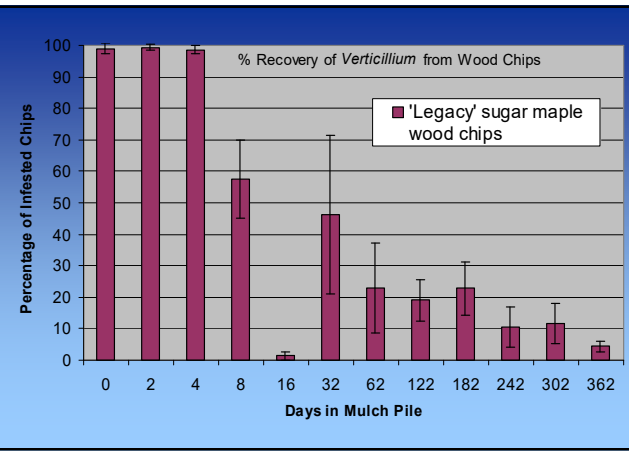
- Causes
  - *Verticillium dahliae*
  - *Verticillium albo-atrum*
  - Other *Verticillium* spp.
  - New *Verticillium* spp.

Deciduous Tree and Shrub Diseases
Verticillium Wilt

- 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 (for infection)
  - Hot, dry weather (for symptom development)

Deciduous Tree and Shrub Diseases
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



- **Wood Chips as an Inoculum Source**
  - Amur maple
    - 30.0%/25.0% (Trted)
    - 0.0%/0.0% (Non-Trted)
  - Green Ash
    - 23.7%/10.5% (Trted)
    - 0.0%/0.0% (Non-Trted)
  - Redbud
    - 10.7%/13.3% (Trted)
    - 0.0%/0.0% (Non-Trted)

Deciduous Tree and Shrub Diseases
Verticillium Wilt

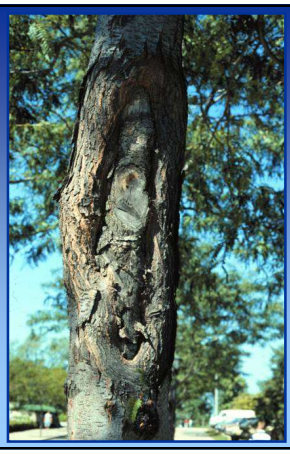
- Control
  - Use immune/resistant plants
    - CONIFERS: Pines, spruces, firs, junipers
    - DECIDUOUS TREES/SHRUBS: Beech, birch, ginkgo, hackberry, hawthorn, hickory, honey locust, mountain ash, white oak, bur oak, poplar, serviceberry, sycamore, willow
  - Prevent stress
  - Prune diseased (wilted) areas

Deciduous Tree and Shrub Diseases
Verticillium Wilt

- Control
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach
  - Make plants comfortable until they die
  - Remove and destroy diseased plants
    - Burn (where allowed)
  - DO NOT use fungicides

Trees and Shrubs Diseases
Nectria Canker

- Pathogen: Nectria spp.
- Hosts
  - Many woody ornamentals
  - Honey locust
- Favorable environment
  - Injuries/wounds
  - Wet weather



Deciduous Tree and Shrub Diseases
Nectria Canker

- Control
  - Choose well-adapted trees and shrubs
  - Reduce environmental stresses/injuries
  - Water and fertilize properly
  - Prune properly when maintenance pruning
  - Prune diseased branches

Deciduous Tree and Shrub Diseases
Nectria Canker

- Control
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach
  - Destroy infected materials
    - Burn (where allowed)
    - Deep bury
  - DO NOT use fungicides

Deciduous Tree and Shrub Diseases
Golden Canker

- Cause: Cryptodiaporthe corni
- Host: Pagoda dogwood
- Favorable environment
  - Water stress
  - Heat stress

Deciduous Tree and Shrub Diseases
Golden Canker

- Control
  - Prune diseased branches
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach
  - Destroy infected materials
    - Burn (where allowed)
    - Deep bury

Deciduous Tree and Shrub Diseases
Golden Canker

- Control
  - Reduce plant stress
    - Consider tree placement
    - Water adequately
    - Fertilize appropriately
  - DO NOT use fungicides for control

Deciduous Tree and Shrub Diseases
Thousand Cankers Disease

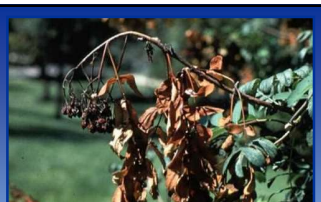
- Cause: Geosmithia morbida
- Hosts
  - Black walnut
  - Other walnuts
- Favorable Environment: None
- Transmission
  - Walnut twig beetle (Pityophthorous juglandis)

Deciduous Tree and Shrub Diseases
Thousand Cankers Disease

- Control
  - DO NOT transport walnut wood/products from areas known to have the disease
  - Remove and destroy (burn) affected trees (assisted by WI DATCP and USDA APHIS)
  - No effective fungicide strategies known
  - No effective insecticide strategies known
  - Contact the PDDC if you believe you have found this disease!

Deciduous Tree and Shrub Diseases
Fire Blight

- Cause: Erwinia amylovora
- Hosts
  - Many woody rosaceous plants
  - Apple, crabapple, pear, mountain ash, cotoneaster
- Favorable environment
  - Wet weather
  - Hail (or other wounding)



Deciduous Tree and Shrub Diseases
Fire Blight

- Control
  - Plant resistant varieties where available
    - "Top Ornamental Crabapples for Wisconsin" (https://pddc.wisc.edu/fact-sheet-listing-all/)
  - Prune diseased branches
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach

Deciduous Tree and Shrub Diseases
Fire Blight

- Control
  - Destroy infected materials
    - Burn (where allowed)
    - Deep bury
  - DO NOT over-fertilize with nitrogen
  - Use bactericides to prevent infections (?)
    - Copper-containing fungicides, streptomycin
    - Apply during flowering
    - Apply every 7-14 days (3-4 days)

Deciduous Tree and Shrub Diseases
Bacterial Canker

- Causes
  - Pseudomonas syringae pv. syringae
  - Psdueomonas syringae pv. mors-prunorum
- Hosts: Stone fruits (plum, cherry, peach)
- Favorable environment
  - Wet weather
  - Wounding

Deciduous Tree and Shrub Diseases
Bacterial Canker

- Control
  - Minimize wounding
  - Prune diseased branches
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach

Deciduous Tree and Shrub Diseases
Bacterial Canker

- Control
  - Destroy infected materials
    - Burn (where allowed)
    - Deep bury
  - DO NOT use bactericides

Deciduous Tree and Shrub Diseases
Bacterial Blight

- Cause: Pseudomonas syringae pv. syringae
- Host
  - Lilac
  - Other trees and shrubs
- Favorable environment
  - Wet weather
  - Cold temperatures

Deciduous Tree and Shrub Diseases
Bacterial Blight

- Control
  - Space lilacs to promote good air flow
  - Reduce any stresses
  - Avoid overhead watering
  - Prune diseased branches
  - Decontaminate pruning tools
    - 70% alcohol (spray disinfectants)
    - Commercial disinfectants
    - 10% bleach

Deciduous Tree and Shrub Diseases
Bacterial Blight

- Control
  - Destroy infected materials
    - Burn (where allowed)
    - Deep bury
  - Use bactericides to prevent infections
    - Copper + mancozeb
    - Apply starting at bud break, 2-3 times at 7-10 day intervals

Deciduous Tree and Shrub Diseases
Ash Yellows

- Cause
  - Candiatus Phytoplasma fraxini (Ash yellows phytoplasma)
- Hosts
  - White ash
  - Green ash
  - Other ash
  - Lilac

Deciduous Tree and Shrub Diseases
Ash Yellows

- Favorable environment
  - High leafhopper populations (Scaphoideus)

Deciduous Tree and Shrub Diseases
Ash Yellows

- Control
  - Make infected trees comfortable until they die
  - Remove infected trees
  - Destroy infected materials
    - Burn (where allowed)
    - Deep bury
  - Avoid growing susceptible trees and shrubs

Deciduous Tree and Shrub Diseases
Root/Crown Rots

- Pathogens
  - *Pythium* spp.
  - *Phytophthora* spp.
  - *Rhizoctonia solani*
  - *Fusarium* spp.
  - *Cylindrocarpon* spp.
- Hosts: Any deciduous tree or shrub
- Favorable environment: Cool, wet soils

Deciduous Tree and Shrub Diseases
Root/Crown Rots

- Control
  - Moderate soil moisture
    - Grow trees and shrubs in well-drained sites
    - Use a soil with adequate drainage
    - Improve drainage in poorly drained soils
      - Add organic matter to improve drainage
      - Use raised beds
    - DO NOT overwater
    - DO NOT overmulch

Deciduous Tree and Shrub Diseases
Root/Crown Rots

- Control
  - DO NOT move contaminated soil or plants to non-infested areas
  - Decontaminate infested tools, pots, work areas
  - Pretest soils/mulches/composts for the presence of root rot fungi
  - Use a soil-less potting mix for containerized plants

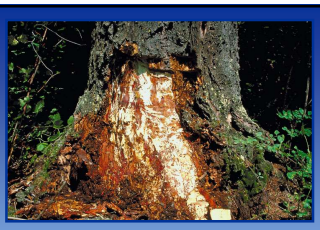
Deciduous Tree and Shrub Diseases
Root/Crown Rots

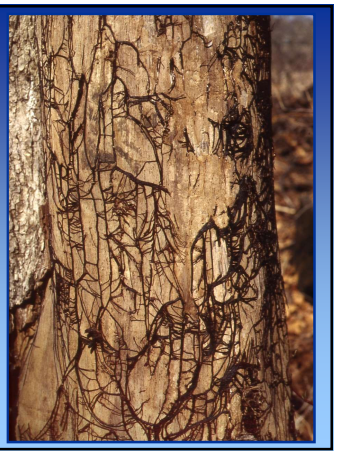
- Control
  - Use fungicides to prevent infections
    - Etridiazole, metalaxyl/mefenoxam, fosetyl-Al, PCNB, thiophanate-methyl, fludioxonil
    - Use granular formulations if possible
    - Use during periods of wet weather
  - Use biopesticides to prevent infections
    - *Trichoderma*, *Gliocladium*
    - Use for potted plants

Deciduous Tree and Shrub Diseases
Armillaria Root Disease

- Pathogens: Armillaria spp.
- Hosts
  - Many deciduous trees and shrubs
  - Many conifers
- Favorable environment
  - Drought stress
  - Stress due to defoliation
  - Other stresses







Deciduous Tree and Shrub Diseases
Armillaria Root Disease

- Control
  - Reduce tree/shrub stress where possible
    - Water adequately
    - Fertilize properly
    - Control foliar pathogens
    - Control foliar insect pests
  - DO NOT wound trees
  - Remove Armillaria-infested materials
  - DO NOT use fungicides

Deciduous Tree and Shrub Diseases
Chlorosis

- Cause: Micronutrient (Fe or Mn) deficiency
- Affected plants
  - Oaks (especially pin oak)
  - Red Maples
  - Rhododendrons
  - Other woody (and herbaceous) plants



Deciduous Tree and Shrub Diseases
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

Deciduous Tree and Shrub Diseases
Herbicide Injury

- Causes
  - Growth regulator herbicides
    - 2,4-D
    - Dicamba
    - Imprelis!
  - Other herbicides
- Affected plants: Anything and everything

Deciduous Tree and Shrub Diseases
Herbicide Injury

- Management
  - Apply herbicides only when needed
  - Follow application directions exactly
  - Apply herbicides only when wind speed is low (< 5 mph)
  - DO NOT apply herbicides too close to nontarget plants
  - Apply herbicides at low pressure

Deciduous Tree and Shrub Diseases
Herbicide Injury

- Management
  - Use amine rather than ester forms of herbicides
  - Adequately test herbicides prior to registration!

Deciduous Tree and Shrub Diseases
Winter Injury

- Causes
  - Water stress
  - Extreme winter temperatures
  - Insufficient snow cover
  - Cycling winter temperatures
  - Ice

Deciduous Tree and Shrub Diseases
Winter Injury

- Affected plants
  - Fruit trees
    - Pome fruits (apple, pear)
    - Stone fruits (cherry, plum, peach, apricot)
  - Maples
    - Japanese
    - Korean
  - Redbud

Deciduous Tree and Shrub Diseases
Winter Injury

- Management
  - Water trees and shrubs adequately
  - Plant trees and shrubs
    - Properly
    - In protected locations (sensitive plants)
  - Insulate sensitive plants where possible
  - Pray for
    - Lots of snow
    - A slow, gradual spring warm up

Deciduous Tree and Shrub Diseases
Other Abiotic Disorders

Salt Injury

Tatters

Construction Injury

Water Stress

Girdling Root

Lawn Mower Injury

Deciduous Tree and Shrub Diseases
Non-Diseases: Fungi/Fungal Allies

Giant Puffballs

Lichens

Stink Horns

Bird's Nest Fungi

Slime Molds

Deciduous Tree and Shrub Diseases
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
http://pddc.wisc.edu
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