

Portage County Master Gardeners

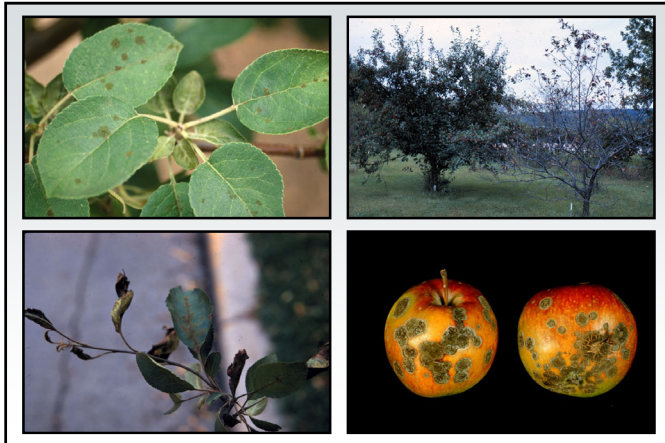
Top Ten Plant Diseases of 2024

Brian D. Hudelson
Department of Plant Pathology
University of Wisconsin-Madison/Extension



Top Ten Plant Diseases of 2024 Scab (Apple and Pear)

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



Top Ten Plant Diseases of 2024 Scab (Apple and Pear)

- Control
 - Plant resistant varieties
 - “Home Fruit Cultivars for Northern Wisconsin” (<https://learningstore.extension.wisc.edu/>)
 - “Home Fruit Cultivars for Southern Wisconsin” (<https://learningstore.extension.wisc.edu/>)
 - “Top Ornamental Crabapples for Wisconsin” (<https://hort.extension.wisc.edu/>)

Top Ten Plant Diseases of 2024 Scab (Apple and Pear)

- Control
 - Remove/destroy diseased leaves
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - Thin trees to promote air flow

Top Ten Plant Diseases of 2024 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 2024
Septoria Leaf Spot

- Cause: *Septoria* sp.
- Host: Lilac
- Favorable environment: Wet weather



Top Ten Plant Diseases of 2024
Septoria Leaf Spot

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

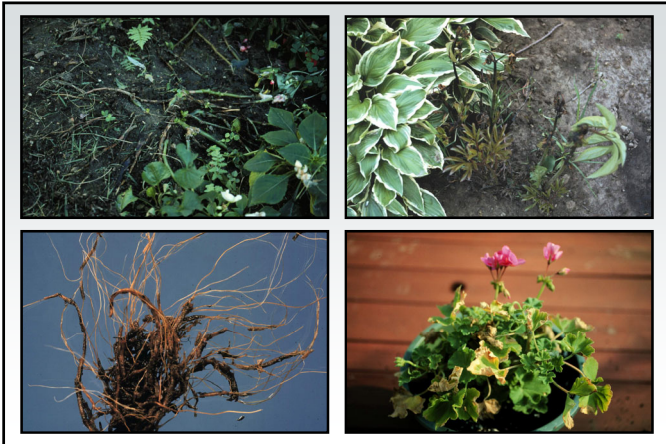
Top Ten Plant Diseases of 2024
Septoria Leaf Spot

- 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 2024
Root/Crown Rots

- Pathogens
 - *Pythium* spp. – *Phytophthora* spp.
 - *Rhizoctonia solani* – *Fusarium* spp.
 - *Cylindrocarpon* spp. – *Thielaviopsis* spp.
- Hosts: Any woody or herbaceous plant
- Favorable environment: Cool, wet soils





Top Ten Plant Diseases of 2024 Root/Crown Rots

- **Control**
 - Moderate soil moisture
 - Grow plants in well-drained sites
 - Use a soil/potting mix with adequate drainage
 - Improve drainage in poorly drained soils
 - Add organic matter to improve drainage
 - Use raised beds
 - DO NOT overwater
 - DO NOT overmulch

Top Ten Plant Diseases of 2024 Root/Crown Rots

- **Control**
 - DO NOT move contaminated soil or plants
 - Decontaminate infested tools, pots, work areas (70% alcohol, disinfectants, bleach)
 - Pretest soils/mulches/composts
 - Use soil-less potting mixes for containerized plants

Top Ten Plant Diseases of 2024 Root/Crown Rots

- **Control**
 - Use fungicides to prevent infections
 - Contract with a professional pesticide applicator
 - PCNB, thiophanate-methyl, fludioxonil, Etridiazole, metalaxyl/mefenoxam, fosetyl-AI
 - Alternate active ingredients
 - Use granular formulations if possible
 - Use during periods of wet weather

Top Ten Plant Diseases of 2024 Root/Crown Rots

- **Control**
 - Use biopesticides to prevent infections
 - *Trichoderma*, *Gliocladium*
 - Use for potted plants

Top Ten Plant Diseases of 2024 Aster Yellows

- **Pathogen:** Aster yellows phytoplasma
- **Hosts**
 - Many plants in the Asteraceae (aster family)
 - Many other plants in many other plant families
 - Vegetable crops
- **Favorable environment:** None
- **Vector:** Aster leafhopper



Top Ten Plant Diseases of 2024 Aster Yellows

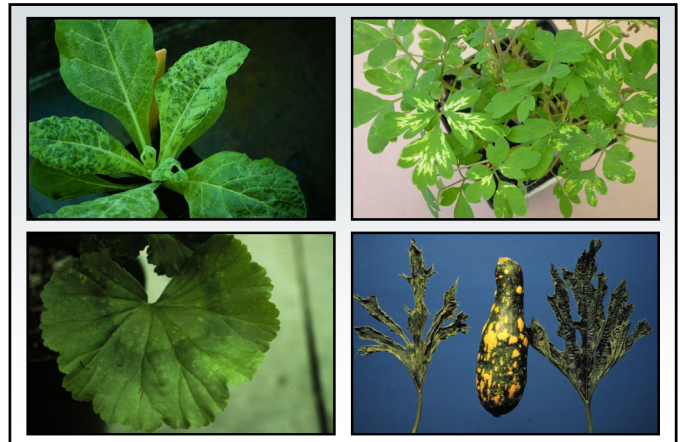
- **Control**
 - Remove diseased plants
 - Hot compost
 - Bury
 - Burn (where allowed)
 - Control leafhopper vector (?)

Top Ten Plant Diseases of 2024 Virus Diseases

- **Pathogens**
 - Many and varied
 - *Tobacco mosaic virus (TMV)*
 - *Cucumber mosaic virus (CMV)*
 - *Impatiens necrotic spot virus (INSV)*
 - *Tobacco rattle virus (TRV)*
 - *Hosta virus X (HVX)*
- **Hosts: Many ornamentals and vegetables**

Top Ten Plant Diseases of 2024 Virus Diseases

- **Favorable environment: None**
- **Transmission**
 - Touch (TMV)
 - Mechanical injury (HVX)
 - Insects (CMV, INSV)
 - Nematodes (TRV)
 - Grafting
 - Seed





Top Ten Plant Diseases of 2024 Virus Diseases

- **Control**
 - Buy plants from a reputable source
 - Inspect plants for viral symptoms
 - Test plants for viruses (Agdia, Inc.: <https://www.agdia.com/>)
 - DO NOT buy symptomatic plants
 - Use resistant/tolerant varieties
 - Keep weeds under control

Top Ten Plant Diseases of 2024 Virus Diseases

- **Control**
 - Control insects (e.g., aphids, thrips)
 - DO NOT smoke around your plants
 - Remove and destroy infected plants
 - Burn (where allowed)
 - Deep bury/landfill
 - Hot compost
 - Technique depends on the virus
 - Wash hands routinely with soap and water

Top Ten Plant Diseases of 2024 Virus Diseases

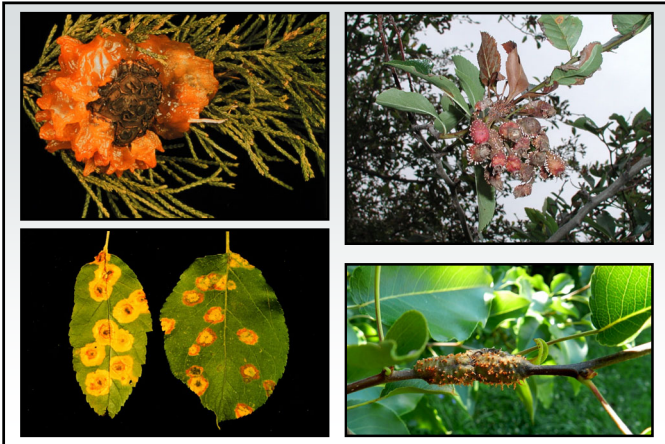
- **Control**
 - Disinfect contaminated materials
 - 1% sodium dodecyl sulfate (sodium lauryl sulfate) + 1% Alconox® (2½ Tbsp + 2¼ Tbsp/gal)
 - Trisodium phosphate (14 dry oz/gal)
 - Alcohol dip following by flaming
 - DO NOT use chemical controls on plants

Top Ten Plant Diseases of 2024 Gymnosporangium Rusts

- **Pathogens: *Gymnosporangium* spp.**
 - *Gymnosporangium juniperi-virginianae* (Cedar-apple rust)
 - *Gymnosporangium globosum* (Cedar-hawthorn rust)
 - *Gymnosporangium clavipes* (Cedar-quince rust)
 - *Gymnosporangium yamadai* (Red star rust)

Top Ten Plant Diseases of 2024 Gymnosporangium Rusts

- **Hosts**
 - Junipers
 - Rosaceous plants
 - Apple, crabapple
 - Hawthorn
 - Quince
 - Pear
 - Serviceberry
- **Favorable environment: Wet weather**



Top Ten Plant Diseases of 2024 Gymnosporangium Rusts

- Control
 - Grow only junipers or rosaceous hosts
 - Use resistant cultivars/varieties
 - “Home Fruit Cultivars for Northern Wisconsin” (<https://learningstore.extension.wisc.edu/>)
 - “Home Fruit Cultivars for Southern Wisconsin” (<https://learningstore.extension.wisc.edu/>)

Top Ten Plant Diseases of 2024 Gymnosporangium Rusts

- Control
 - Remove galls
 - Decontaminate pruning tools (70% alcohol, disinfectants, bleach)
 - Destroy infected materials
 - Burn (where allowed)
 - Deep bury

Top Ten Plant Diseases of 2024 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 2024 Verticillium Wilt

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

Top Ten Plant Diseases of 2024 Verticillium Wilt

- **Hosts**
 - Many woody ornamentals
 - Common: Maple, ash, redbud, smokebush
 - New: Red-twigged dogwood
 - Many vegetables
 - Tomato, potato, pepper, EGGPLANT, cucurbits
 - Many herbaceous plants
 - Common: Purple coneflower, blazing star
 - New: Gasplant

Top Ten Plant Diseases of 2023 Verticillium Wilt

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



Top Ten Plant Diseases of 2024 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
 - Clean up leaf litter
 - Avoid municipal mulches

Top Ten Plant Diseases of 2024 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

Top Ten Plant Diseases of 2024
Verticillium Wilt

- **Control**
 - Decontaminate pruning tools (70% alcohol, disinfectants, bleach)
 - Make plants comfortable until they die
 - Remove and destroy diseased plants/leaves
 - Burn (where allowed)
 - Hot compost (?)
 - DO NOT use fungicides

Top Ten Plant Diseases of 2024
Bacterial Canker

- **Pathogens**
 - *Pseudomonas syringae* pv. *syringae*
 - *Pseudomonas syringae* pv. *mors-prunorum*
- **Hosts: Stone fruits (plum, cherry, peach)**
- **Favorable environment**
 - Wet weather
 - Cold temperatures
 - Wounding

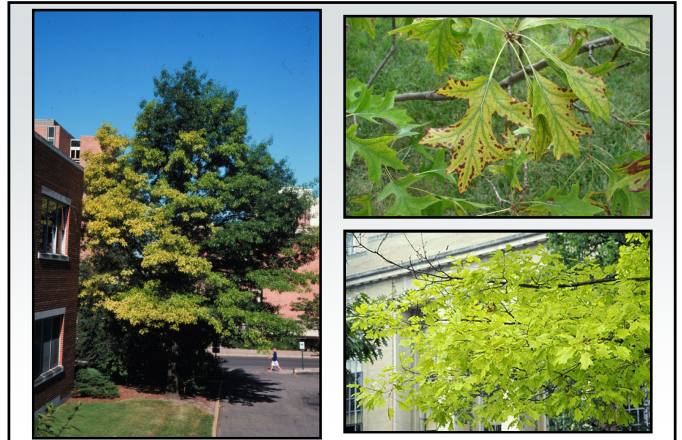


Top Ten Plant Diseases of 2024
Bacterial Canker

- **Control**
 - Minimize wounding
 - Prune diseased branches
 - Decontaminate pruning tools (70% alcohol, disinfectants, bleach)
 - Destroy infected materials
 - Burn (where allowed)
 - Deep bury
 - DO NOT use bactericides

Top Ten Plant Diseases of 2024
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 2024
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

Top Ten Plant Diseases of 2024
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 2024
Rhizosphaera Needle Cast

- **Hosts (minor)**
 - Pines: Austrian, mugo, eastern white pine
 - Douglas fir
 - Hemlock
 - Balsam fir and other firs
- **Favorable environment**
 - Long periods of needle wetness
 - High humidity



Top Ten Plant Diseases of 2024
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

Top Ten Plant Diseases of 2024
Rhizosphaera Needle Cast

- **Control**
 - Decontaminate pruning tools
(70% alcohol, disinfectants, 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 2024
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>
Follow on Facebook, Twitter, YouTube: @UWPDDC
Subscribe to the PDDC Listserv: UWPDDCLearn