

Extension Douglas County Presents

Diseases in the Garden

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Diseases in the Garden Scab (Apple and Pear)

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



Diseases in the Garden 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/>)

Diseases in the Garden Scab (Apple and Pear)

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

Diseases in the Garden Scab (Apple and Pear)

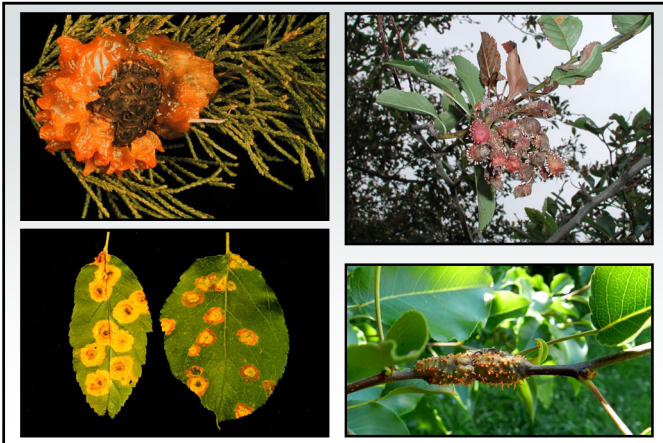
- **Control**
 - Use fungicides to prevent infections
 - Chlorothalonil, copper, mancozeb, myclobutanil, propiconazole, thiophanate-methyl, sulfur
 - Alternate active ingredients (FRAC codes)
 - Apply from bud break through the end of favorable weather
 - Apply at 7 to 14-day intervals

Diseases in the Garden Gymnosporangium Rusts

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

Diseases in the Garden Gymnosporangium Rusts

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



Diseases in the Garden Gymnosporangium Rusts

- 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/>)

Diseases in the Garden Gymnosporangium Rusts

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

Diseases in the Garden 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

Diseases in the Garden Black Knot

- Cause: *Apiosporina morbosa*
- Hosts: *Prunus* spp.
 - Plums
 - Cherries
- Favorable environment: Wet weather



Diseases in the Garden 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

Diseases in the Garden Black Knot

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

Diseases in the Garden Fungal Leaf Blights

- Causes
 - *Septoria lycopersici* (Septoria leaf spot)
 - *Alternaria solani* (early blight)
 - *Phytophthora infestans* (late blight)
- Hosts
 - Tomato
 - Potato (early blight, late blight)
- Favorable environment: Cool, wet weather





Diseases in the Garden

Fungal Leaf Blights

- Control (early blight, Septoria leaf spot)
 - Remove and destroy contaminated debris
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - Move tomatoes to new location

Diseases in the Garden

Fungal Leaf Blights

- Control (early blight, Septoria leaf spot)
 - Plant resistant varieties
 - Space plants far apart
 - Mulch around the base of plants
 - DO NOT overmulch

Diseases in the Garden

Fungal Leaf Blights

- Control (early blight, Septoria leaf spot)
 - DO NOT overhead water
 - Thin plants as they grow
 - Use fungicides to prevent infections
 - Chlorothalonil, mancozeb
 - Copper
 - Alternate active ingredients (FRAC codes)
 - Apply at 7-14 days intervals

Diseases in the Garden

Fungal Leaf Blights

- Control (late blight)
 - Remove any infected plants and plant parts
 - Infected tomato/potato plants including fruits and tubers
 - Volunteer tomato and potato plants
 - Weed hosts
 - Destroy any infected plants and plant parts
 - Burn (where allowed)
 - Double bag and landfill

Diseases in the Garden

Fungal Leaf Blights

- Control (late blight)
 - DO NOT use last year's potatoes as seed
 - DO use certified seed potatoes
 - Grow resistant tomato varieties
 - “Late Blight Management in Tomato with Resistant Varieties”
 - (<https://eorganic.org/node/10822>)

Diseases in the Garden

Fungal Leaf Blights

- **Control (late blight)**
 - Use fungicides to prevent infections
 - Chlorothalonil, mancozeb
 - Copper
 - Alternate active ingredients (FRAC codes)
 - Start applications based on Blitecast (<https://vegpath.plantpath.wisc.edu/>)
 - Apply at 7-14 day intervals

Diseases in the Garden

Blossom End Rot

- **Cause:** Calcium deficiency
- **Affected plants**
 - Tomato
 - Pepper
 - Eggplant
 - Cucurbits (cucumber, squash, pumpkin, watermelon)
- **Favorable Environment:** Drought



Diseases in the Garden

Blossom End Rot

- **Management**
 - Test soil to determine calcium level
 - Add calcium as needed
 - Bone meal
 - Egg shells
 - NOT lime (usually)
 - Water plants adequately and uniformly

Diseases in the Garden

Powdery Mildews

- **Cause**
 - Erysiphe spp.
 - Uncinula spp.
 - Phyllactinia spp.
 - Blumeria spp.
 - Oidium spp.
 - Microsphaera spp.
 - Sphaerotheca spp.
 - Podosphaera spp.
 - Brasiliomyces spp.
 - Oulariopsis spp.
- **Hosts:** Virtually anything
- **Favorable environment:** High humidity



Diseases in the Garden 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

Diseases in the Garden Powdery Mildews

- **Control**
 - Use fungicides to prevent infections
 - Dithiocarbamates, myclobutanil, propiconazole, tebuconazole, thiophanate-methyl
 - Sulfur, neem oil, other plant-based oils
 - 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

Diseases in the Garden Aster Yellows

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



Diseases in the Garden Aster Yellows

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

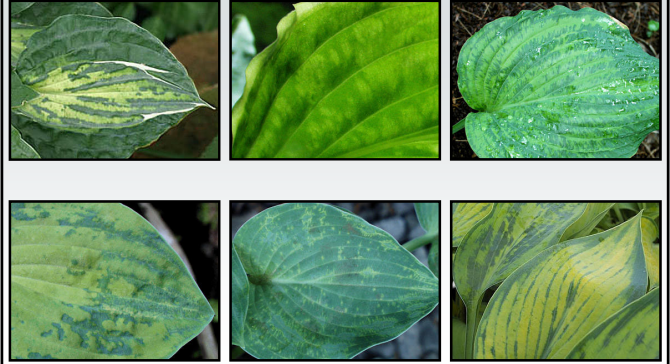
Diseases in the Garden Hosta Virus X

- **Cause:** Hosta virus X (HVX)
- **Host:** Hosta
 - ‘Gold Edger’
 - ‘Gold Standard’
 - ‘Golden Tiara’
 - ‘Striptease’
 - ‘Sum and Substance’
- **Favorable environment:** None

Diseases in the Garden

Hosta Virus X

- **Transmission: Mechanical**
 - Shovels
 - Knives
 - String edgers
 - Lawnmowers



Diseases in the Garden

Hosta Virus X

- **Control**
 - Buy hostas from a reputable source
 - Inspect hostas for symptoms
 - Test hostas prior to purchase
 - Keep new and established hostas separated
 - Remove diseased plants and plant debris
 - Burn (where allowed)
 - Deep bury
 - Hot compost

Diseases in the Garden

Hosta Virus X

- **Control**
 - Disinfest contaminated materials
 - 1% Sodium dodecyl sulfate (sodium lauryl sulfate) + 1% Alconox® (2½ Tbsp + 2¼ Tbsp/gal)
 - Trisodium phosphate (14 dry oz/gal)
 - 20% low fat dry milk (Carnation®) + 0.1% polysorbate 20 (9½ cups + ¼ tsp/gal)
 - Alcohol dip followed by flaming
 - **DO NOT** use chemical controls on plants

Diseases in the Garden

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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