

Madison Mycological Society

Rusts and Smuts and Poop-on-a-Stick, Oh My!

(Common Fungal Plant Diseases You Can Learn to Love)

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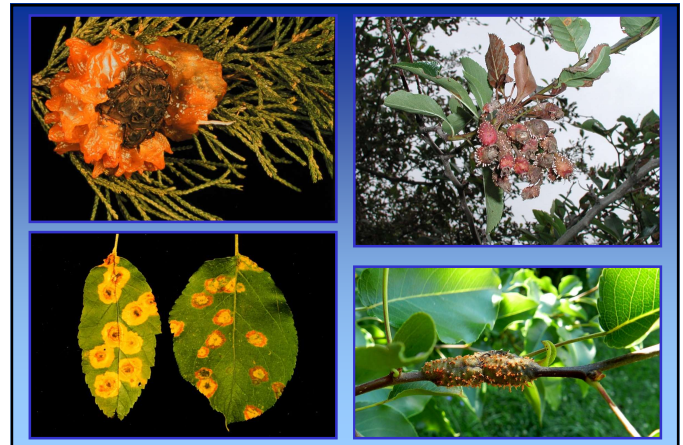


Common Fungal Plant Diseases Gymnosporangium Rusts

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

Common Fungal Plant Diseases Gymnosporangium Rusts

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



Common Fungal Plant 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

Common Fungal Plant Diseases Gymnosporangium Rusts

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

Common Fungal Plant 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)]

Common Fungal Plant Diseases *Common Smut*

- **Cause:** *Ustilago maydis*
- **Host:** Sweet corn
- **Favorable environment**
 - None (ear infections)
 - Hail (leaf and stalk infections)



Common Fungal Plant Diseases *Common Smut*

- **Control**
 - Plant resistant varieties
 - Reduce physical damage to corn plants
 - DO NOT use chemical or biological controls
 - Give up on your corn and eat the smut (huitlacoche)

Common Fungal Plant Diseases *Black Knot*

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



Common Fungal Plant 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

Common Fungal Plant 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

Common Fungal Plant Diseases **Powdery Mildews**

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





Common Fungal Plant Diseases Powdery Mildews

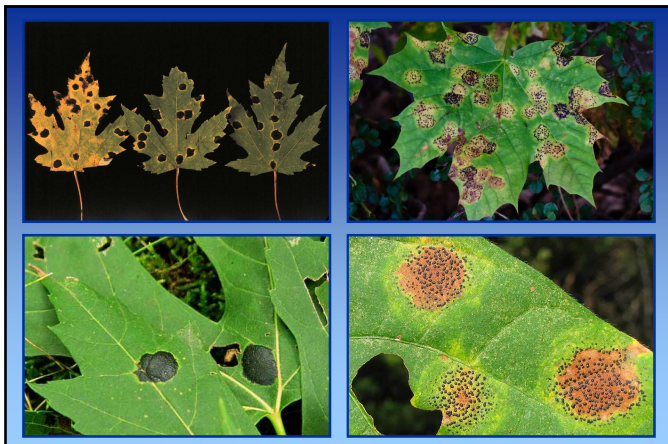
- **Control**
 - Remove diseased plant material and debris
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - Reduce humidity
 - Plant less densely
 - Thin existing stands/tree canopies
 - Use resistant cultivars/varieties

Common Fungal Plant Diseases 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

Common Fungal Plant Diseases Tar Spot

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



Common Fungal Plant Diseases Tar Spot

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

Common Fungal Plant Diseases *Taphrina* Diseases of Stone Fruits

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

Common Fungal Plant Diseases *Taphrina* Diseases of Stone Fruits

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



Common Fungal Plant Diseases *Taphrina* Diseases of Stone Fruits

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

Common Fungal Plant 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

Common Fungal Plant Diseases Southern Blight

- **Pathogen:** *Sclerotium rolfsii*
- **Hosts**
 - Herbaceous plants (hosta)
 - Vegetable crops (tomato, beet)
 - Some woody ornamentals
- **Favorable environment**
 - Warm soil temperatures
 - Wet soils



Common Fungal Plant Diseases Southern Blight

- **Control**
 - DO NOT buy infected/infested plants
 - Avoid cocoa mulch (?)
 - Remove infected plants, mulch and soil
 - Double bag
 - Landfill
 - Disinfest contaminated materials
 - 70% alcohol
 - Commercial disinfectants
 - 10% bleach

Common Fungal Plant Diseases Southern Blight

- **Control**
 - Amend soil with organic matter (?)
 - Use fungicides for control
 - Contract with a professional pesticide applicator
 - Azoxystrobin, flutolanil, flutolanil + thiophanate-methyl, PCNB, tebuconazole, triadimefon
 - Alternate active ingredients (FRAC codes)
 - Apply 14 – 28 day intervals
 - Pray for a really, really, REALLY cold winter

Common Fungal Plant Diseases White Mold

- **Cause:** Sclerotinia sclerotiorum
- **Hosts**
 - Many vegetables (snap beans, carrots)
 - Herbaceous ornamentals
 - Field crops (soybeans)
- **Favorable environment**
 - Cool temperatures
 - High moisture (including high humidity)



Common Fungal Plant Diseases White Mold

- **Control**
 - Prevent introduction through seed
 - Routinely rotate crops
 - Avoid planting susceptible vegetables in infested areas (5-7 yrs)
 - Plant non-hosts in infested areas
 - Plant beans (and other vegetables) with wider row spacings

Common Fungal Plant Diseases **White Mold**

- **Control**
 - DO NOT over-water
 - DO NOT over-mulch
 - DO NOT over-fertilize
 - Control broad-leaf weeds
 - Use biological control products
 - Coniothyrium minitans
 - Parasitizes sclerotia

Common Fungal Plant Diseases **Golden Canker**

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



Common Fungal Plant 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

Common Fungal Plant Diseases **Golden Canker**

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

Common Fungal Plant Diseases **Armillaria Root Disease**

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



Common Fungal Plant 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*

Common Fungal Plant 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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