

Spring into Gardening

Rusts and Smuts and Poop-on-a-Stick, Oh My! *Diaboliical Diseases in the Garden*

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Diaboliical 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.
- *Ovulariopsis* spp.

• Hosts: Virtually everything



Diaboliical 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

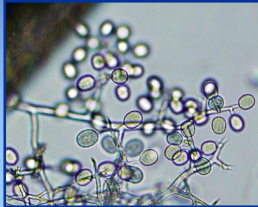
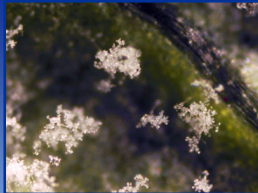
Diaboliical Diseases in the Garden *Powdery Mildews*

• Control

- Use fungicides to prevent infections
 - Dinocap, dithiocarbamates, myclobutanil, triadimefon, triforine, thiophanate-methyl, or sulfur
 - Baking soda (1.5 Tbsp/gal) and light weight horticultural oil (3 Tbsp/gal)
 - Alternate active ingredients (FRAC Codes)
 - Apply when humidity >60-70%
 - 7-14 day application interval

Diabolical Diseases in the Garden Impatiens Downy Mildew

- Cause: Plasmopara obducens
- Hosts
 - Standard garden impatiens (I. walleriana)
 - Balsam impatiens (I. balsamina)
 - Jewelweed (I. pallida, I. capensis)
 - New Guinea impatiens (I. hawkeri) (resistant/tolerant)



Diabolical Diseases in the Garden Impatiens Downy Mildew

- Control
 - Grow tolerant/resistant/immune plants
 - DO NOT grow impatiens in the same location every year
 - Start with clean transplants and seed
 - Keep materials from different sources physically separated
 - DO NOT overcrowd plants
 - DO NOT overhead water

Diabolical Diseases in the Garden Impatiens Downy Mildew

- Control
 - Watch carefully for the disease
 - Bag and discard affected plants
 - Symptomatic plants
 - Asymptomatic surrounding plants
 - Disinfect contaminated materials
 - 10% bleach
 - 70% alcohol
 - Commercial disinfectants

Diabolical Diseases in the Garden Impatiens Downy Mildew

- Control
 - Use fungicides to prevent infections
 - Mancozeb
 - Apply at 7 day application intervals

Diabolical 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
- **Vector:** *Aster leafhopper*



Diabolical Diseases in the Garden Aster Yellows

- **Control**
 - Remove and dispose of infected plants
 - Burn (where allowed)
 - Bury
 - Compost
 - Control leafhopper vector (?)

Diabolical Diseases in the Garden Southern Blight

- **Pathogen:** *Sclerotium rolfsii*
- **Hosts**
 - Many other herbaceous annuals and perennials
 - Hosta
 - Bedding plants
 - Some woody ornamentals



Diabolical Diseases in the Garden **Southern Blight**

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

Diabolical Diseases in the Garden **Southern Blight**

- **Control**
 - Use fungicides for control
 - Triadimefon
 - 14 – 28 day intervals
 - Pray for a cold winter

Diabolical Diseases in the Garden **Common Smut**

- **Cause:** Ustilago maydis
- **Host:** Corn



Diabolical Diseases in the Garden **Common Smut**

- **Control**
 - Plant resistant varieties
 - Reduce physical damage to corn plants
 - Give up on your corn and eat the smut

Diabolical Diseases in the Garden **Leaf Streak**

- **Cause:** Aureobasidium microstictum
- **Host:** Daylily



Diabolical Diseases in the Garden Leaf Streak

- **Control**
 - Remove diseased leaves and plant debris
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - Promote rapid drying of leaves
 - Divide large clumps
 - Plant less densely
 - DO NOT overhead water

Diabolical Diseases in the Garden Leaf Streak

- **Control**
 - Use varieties that are less susceptible
 - 'Betty Bennet', 'Edna Spalding', 'Ella Pettigrew', 'Globe Trotter', 'Nancy Hicks', 'Pink Superior', 'Ron Rousseau', 'Sudie', 'Tropical Tones', 'Upper Room', 'Winsome Lady'
 - Use fungicides to prevent infections
 - Chlorothalonil, mancozeb, thiophanate-methyl
 - Alternate active ingredients (FRAC Codes)
 - 7-14 day application interval

Diabolical Diseases in the Garden Black Spot

- **Cause:** Marssonina rosae
- **Host:** Rose



Diabolical Diseases in the Garden Black Spot

- **Control**
 - Plant resistant rose varieties
 - DO NOT overcrowd plants
 - Prune to thin established plants
 - DO NOT overhead water
 - Remove and destroy infested leaves/canes
 - Burn (where allowed)
 - Deep bury
 - Hot compost

Diabolical Diseases in the Garden Black Spot

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

Diabolical Diseases in the Garden “Cedar-Apple” Rusts

- **Cause:** Gymnosporangium spp.
- **Hosts**
 - Junipers
 - Rosaceous plants: apple, crabapple, hawthorn, quince, pear!



Diabolical Diseases in the Garden “Cedar-Apple” Rusts

- **Control**
 - Plant only one host
 - Use resistant cultivars/varieties
 - Remove galls
 - Use fungicides to prevent infections
 - Ferbam, triadimefon
 - Mid May through mid June (rosaceous hosts)
 - Early July through August (juniper hosts)
 - 7-21 day application interval

Diabolical Diseases in the Garden Black Knot

- **Cause:** Apiosporina morbosae
- **Hosts**
 - Plums
 - Cherries
 - Other Prunus species



Diabolical Diseases in the Garden Black Knot

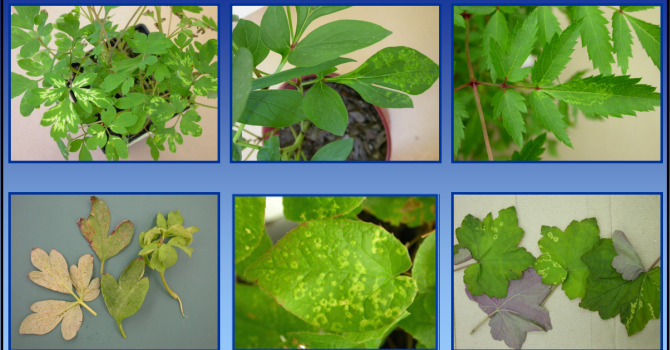
- **Control**
 - DO NOT plant infected Prunus stock
 - Remove volunteer plums/cherries
 - Buy black knot-resistant varieties if available (Prunus 'Accolade', Prunus sargentii, Prunus maackii)
 - Prune diseased branches
 - DO NOT use fungicides

Diabolical Diseases in the Garden Tobacco Rattle

- **Cause: Tobacco Rattle Virus**
- **Hosts**
 - **Ornamentals**
 - Astilbe, bleeding heart, columbine, coral bells, daffodils, epimedium, gladiolus, hyacinth, marigold, peony, tulip, vinca
 - **Vegetables**
 - Beans, beet, pepper, potato, spinach

Diabolical Diseases in the Garden Tobacco Rattle

- **Transmission**
 - Stubby-root nematodes
 - Trichodorus spp.
 - Paratrichodorus spp.
 - Mechanical inoculation
 - Grafting
 - Seed



Anette Phibbs, WI DATCP

Diabolical Diseases in the Garden Tobacco Rattle

- **Control**
 - DO NOT buy symptomatic plants
 - Grow non-susceptible plants
 - Annual phlox, carnation, devil's trumpet (downy thorn-apple), sweet William, zinnia, zombie cucumber
 - Remove and destroy infected plants

Diabolical Diseases in the Garden Tobacco Rattle

- **Control**
 - **Disinfest contaminated materials**
 - Sodium dodecyl sulfate (sodium lauryl sulfate) + Alconox® (1% + 1%)
 - Trisodium phosphate
 - Alcohol dip followed by flaming
 - DO NOT attempt to control stubby-root nematodes

***Diabolical 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@plantpath.wisc.edu
<http://pddc.wisc.edu>
Follow the clinic on Twitter @UWPDDC***