

Wisconsin Peony Society

Peony Diseases

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Peony Diseases Root/Crown Rots

- Pathogens
 - *Phytophthora* spp.
 - *Pythium* spp.
 - *Rhizoctonia solani*
 - *Fusarium* spp.
 - *Cylindrocarpon destructans*
- Hosts
 - Peony
 - Other herbaceous ornamentals
- Favorable environment: Cool, wet soils

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Peony Diseases Root/Crown Rots

- Control
 - Moderate soil moisture
 - Grow plants in well-drained sites
 - Use a 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

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Peony Diseases Root/Crown Rots

- Control
 - Pretest soils/mulches/composts
 - Use a soil-less potting mix or a pasteurized potting mix for containerized plants
 - DO NOT move contaminated soil or plants
 - Disinfect contaminated materials (70% alcohol, disinfectants, bleach)

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Peony Diseases Root/Crown Rots

- Control
 - Use fungicides to prevent infections
 - Contract with a professional pesticide applicator
 - Etridiazole, metalaxyl, mefenoxam, fosetyl-AI, mono- and di-potassium salts of phosphorus acid, PCNB, thiophanate-methyl, fludioxonil
 - Alternate active ingredients (FRAC codes)
 - Use granular formulations if possible
 - Use during periods of wet weather

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Peony Diseases Root/Crown Rots

- **Control**
 - Use biopesticides to prevent infections
 - *Trichoderma*, *Gliocladium*
 - Use for potted plants
 - Exercise caution when combining with chemical fungicides

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Peony Diseases Powdery Mildew

- **Pathogens**
 - *Erysiphe paeoniae*
 - *Erysiphe* spp.
- **Hosts**
 - Peony
 - Anything other than conifers
- **Favorable environment: High humidity**

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Peony 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
 - Divide large clumps

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Peony 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

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Peony Diseases Botrytis Blight/Gray Mold

- **Pathogens**
 - *Botrytis paeoniae*
 - *Botrytis cinerea*
- **Hosts**
 - Peony
 - Virtually any herbaceous plant
 - Flowering plants (rose, dahlia, geranium)
- **Favorable environment: Wet weather**

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Peony Diseases
Botrytis Blight/Gray Mold

- **Control**
 - Remove infested plant debris/infect plant parts
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - Promote rapid drying
 - Plant less densely
 - Thin existing plant stands
 - Divide large clumps

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Peony Diseases
Botrytis Blight/Gray Mold

- **Control**
 - Plant resistant varieties
(<https://pubs.extension.wsu.edu/product/a-growers-guide-to-the-most-common-diseases-of-peony-in-the-united-states/>)
 - DO NOT overhead water
 - DO NOT overwater

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Peony Diseases
Botrytis Blight/Gray Mold

- **Control**
 - Use fungicides to prevent infections
 - Chlorothalonil, copper, mancozeb, fludioxonil, thiophanate-methyl
 - Alternate active ingredients (FRAC Codes)
 - Apply during periods of high moisture
 - Apply at 7-14 day intervals

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Peony Diseases
Leaf Blotch/Measles/Red Spot

- **Pathogen:** *Graphiopsis chlorocephala* (*Cladosporium paeoniae*)
- **Host:** Peony
- **Favorable environment:** Wet weather

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Peony Diseases Leaf Blotch/Measles/Red Spot

- **Control**
 - Remove infested plant debris/infest plant parts
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - Promote rapid drying
 - Plant less densely
 - Thin existing plant stands
 - Divide large clumps

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Peony Diseases Leaf Blotch/Measles/Red Spot

- **Control**
 - DO NOT overhead water
 - DO NOT overwater
 - Use fungicides to prevent infections
 - Chlorothalonil, copper, mancozeb, fludioxonil, thiophanate-methyl
 - Alternate active ingredients (FRAC Codes)
 - Apply during periods of high moisture
 - Apply at 7-14 day intervals

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Peony Diseases Southern Blight

- **Pathogen:** *Agroathelia rolfsii*
(*Athelia rolfsii*, *Sclerotium rolfsii*)
- **Hosts**
 - Peony
 - Many herbaceous annuals and perennials
 - Some woody ornamentals
- **Favorable environment:** Warm, wet weather

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Peony Diseases Southern Blight

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

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Peony Diseases Southern Blight

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

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Peony Diseases White Mold

- Pathogen: *Sclerotinia sclerotiorum*
- Hosts
 - Peony
 - Many herbaceous plants
 - Many vegetables
- Favorable environment
 - Cool temperatures
 - High moisture (including high humidity)

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Peony Diseases White Mold

- Control
 - Avoid planting peonies in high-risk locations
 - Buy high quality plants
 - Prevent introduction through seed
 - Promote rapid drying
 - Plant less densely
 - Thin existing plant stands
 - Divide large clumps

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Peony Diseases White Mold

- Control
 - DO NOT overwater
 - DO NOT overmulch
 - DO NOT overfertilize
 - Control broad-leaf weeds
 - Remove infected plants, mulch and soil
 - Double bag and landfill
 - Disinfect contaminated materials (70% alcohol, disinfectants, bleach)

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Peony Diseases White Mold

- Control
 - Use biological control products
 - *Coniothyrium minitans*
 - Parasitizes sclerotia

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Peony Diseases Tobacco Rattle

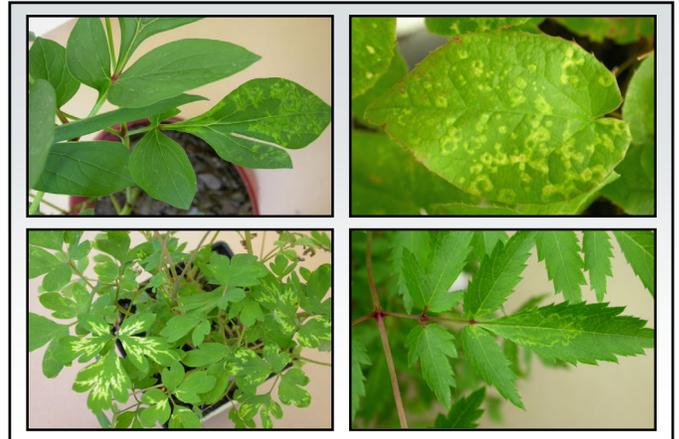
- Pathogen: *Tobacco rattle virus* (TRV)
- Hosts
 - Peony
 - Many other herbaceous ornamentals
 - Many vegetables (potato)
- Favorable environment: None

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Peony Diseases Tobacco Rattle

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

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Peony Diseases Tobacco Rattle

- **Control**
 - DO NOT buy symptomatic plants
 - Remove and destroy infected plants
 - Burn (where allowed)
 - Deep bury
 - Hot compost

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Peony Diseases Tobacco Rattle

- **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

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Peony Diseases Tobacco Rattle

- **Control**
 - DO NOT use chemical controls on plants
 - DO NOT attempt to control stubby-root nematodes

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Peony Diseases Foliar Nematode

- **Pathogens:** *Aphelenchoides* spp.
- **Hosts**
 - Peony
 - Many types of herbaceous plants
 - Houseplants
- **Favorable environment:** Wet weather

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Peony Diseases Foliar Nematode

- Control
 - Inspect plants prior to purchase
 - Avoid overhead watering
 - Remove symptomatic plants and plant debris
 - Burn (where allowed)
 - Deep bury (landfill)
 - Hot compost

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Peony Diseases Foliar Nematode

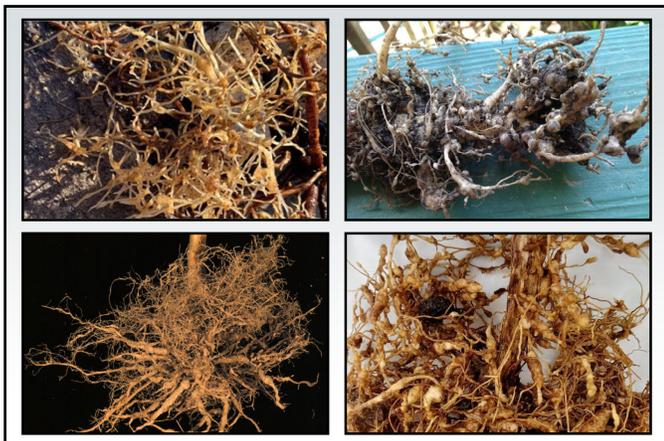
- Control
 - Disinfest contaminated materials (70% alcohol, disinfectants, bleach)
 - Hot water treat plants (?)
 - DO NOT use nematicides

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Peony Diseases Root-Knot Nematode

- Pathogens
 - *Meloidogyne hapla*
 - *Meloidogyne* spp.
- Hosts
 - Peony
 - Many herbaceous ornamentals
 - Many vegetables (tomato)
- Favorable environment: None

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Peony Diseases Root-Knot Nematode

- Control
 - DO NOT buy symptomatic plants
 - Hot water treat roots (118°F for 30 minutes)
 - Remove and destroy infected plants
 - Limit soil movement
 - Disinfest contaminated materials (70% alcohol, disinfectants, bleach)

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Peony Diseases Root-Knot Nematode

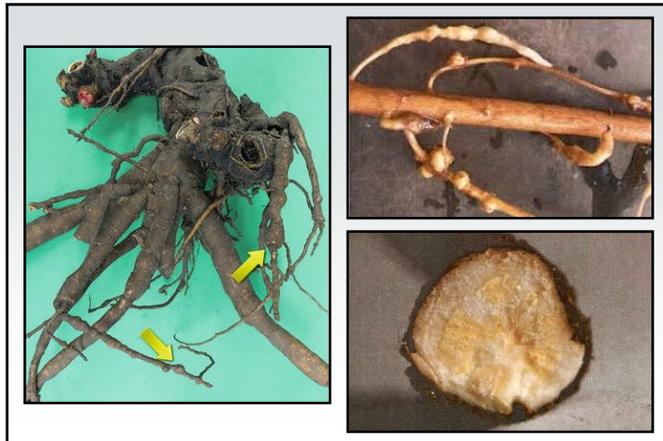
- **Control**
 - Control weeds
 - Grow non-hosts in the affected area
 - Grasses (including grain grasses)
 - French marigolds (alpha-terthienyl)
 - Amend soil with organic matter
 - Fumigate

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Peony Diseases Lemoine Disease

- **Pathogen: Unknown (virus suspected)**
 - *Gentian Koku-sho-associated virus* (GKaV)
 - *Cycas necrotic stunt virus* (CNSV)
 - *Lychnis mottle virus* (LycMoV)
- **Host: Peony**
- **Favorable environment: None**

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Peony Diseases Lemoine Disease

- **Control**
 - DO NOT buy symptomatic plants
 - Remove and destroy infected plants
 - Use resistant varieties ('Alice Harding'?)

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Peony Diseases Lemoine Disease

- **Control**
 - Disinfest contaminated materials
 - 1% Sodium dodecyl sulfate (sodium lauryl sulfate) + 1% Alconox® (2½ Tbsp + 2¾ Tbsp/gal)
 - Trisodium phosphate (14 dry oz/gal)
 - 20% low fat dry milk (Carnation®) + 0.1% polysorbate 20 (9½ cups + ¾ tsp/gal)
 - Alcohol dip followed by flaming

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Peony 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
 https://pddc.wisc.edu
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