

Dr. Death's Plant Disease Predictions Planting-Related Decline

- Causes
 - Impatience
 - Improper planting techniques
 - Overly deep planting
 - Failure to remove burlap, wire basket, wires
- Lack of watering post installation
 Hosts: Any tree or shrub



Dr. Death's Plant Disease Predictions Planting-Related Decline

- Management
 - Plant small trees
 - Plant bare-root trees
 - Prepare balled and burlaped trees properly
 - Remove burlap
 - Remove wire basket
 - Remove wires/cords
 - Expose the root flare

Dr. Death's Plant Disease Predictions Planting-Related Decline

Management

- Mulch properly
 - Use high quality mulches
 - Use the right amount of mulch
- Water properly
 - · Apply two inches of water per week
 - Water from bud break through summer and into the fall

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Continue watering for at least three years

Dr. Death's Plant Disease Predictions Septoria Leaf Spot

- Pathogen: Septoria sp.
- Host: Lilac
- Favorable environment: Wet weather



Dr. Death's Plant Disease Predictions 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

Dr. Death's Plant Disease Predictions 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

Dr. Death's Plant Disease Predictions Boxwood Blight

- Pathogen
 - Calonectria pseudonaviculata
 - Cylindrocladium pseudonaviculatum (Cyindrocladium buxicola)
- Hosts
 - Boxwood
 - Pachysandra
- Favorable Environment: Cool, wet weather



Dr. Death's Plant Disease Predictions Boxwood Blight

- Control
 - Be cautious about holiday wreaths
 - Grow shrubs other than boxwood
 - Buy from a reputable supplier
 - Buy locally produced boxwood

Dr. Death's Plant Disease Predictions Boxwood Blight

- Control
 - Grow resistant varieties
 - Hybrid boxwood
 - 'Green Gem'
 - 'Karzgreen' (Green Ice[®])
 - Japanese littleleaf boxwood
 - 'Jim Stauffer'
 - 'Little Missy'
 - 'Winter Gem'

Dr. Death's Plant Disease Predictions Boxwood Blight

- Control
 - Grow resistant varieties
 - Korean littleleaf boxwood
 - 'Eseles' (Wedding Ring[®])
 - 'Franklin's Gem'
 - 'Pincushion'
 - 'Wee Willie'
 - 'Winter Beauty'
 'Wintergreen'

Dr. Death's Plant Disease Predictions Boxwood Blight

- Control
 - DO NOT replant in an area where boxwood blight has been a problem
 - Avoid symptomatic plants
 - Keep new plants isolated
 - Space plants far apart
 - DO NOT overhead water

Dr. Death's Plant Disease Predictions Boxwood Blight

- Control
 - Prune out diseased branches
 - Decontaminate
 - (70% alcohol, commercial disinfectants)
 - Remove and destroy infected plants
 - Burn (where allowed)
 - · Deep bury (two feet)/Double bag and landfill
 - DO NOT compost

Dr. Death's Plant Disease Predictions Boxwood Blight

Control

- Use fungicides to prevent infections
 - Chlorothalonil (alone or with propiconazole or thiophanate-methyl), fludioxonil, metconazole, tebuconazole
 - Alternate active ingredients (FRAC codes)
 - Apply at 7 day intervals
- Contact the PDDC if you suspect you have seen this disease

Dr. Death's Plant Disease Predictions Gymnosporangium Rusts

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





Dr. Death's Plant Disease Predictions Gymnosporangium Rusts

- Control
 - Grow only junipers or rosaceous hosts
 - Use resistant cultivars/varieties
 - "Juniper Diseases"
 (https://store.extension.iastate.edu/Product/Juniper-Diseases)
 - "Disease and Insect Resistant Ornamental Plants: Juniperus (Junipers)" (https://ecommons.cornell.edu/handle/1813/56372.2)

Dr. Death's Plant Disease Predictions Gymnosporangium Rusts

- Control
 - 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/)

Dr. Death's Plant Disease Predictions Gymnosporangium Rusts

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

Dr. Death's Plant Disease Predictions 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

Dr. Death's Plant Disease Predictions Chlorosis

- · Cause: Micronutrient (Fe or Mn) deficiency
- Affected plants
 - Oaks (especially pin oak)
 - Red maple
 - $\, {\rm Rhododendron}$
 - White pine
 - Blueberries
 - Other woody (and herbaceous) plants





Dr. Death's Plant Disease Predictions 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

Dr. Death's Plant Disease Predictions Fire Blight

- Pathogen: Erwinia amylovora
- Hosts
 - Many woody rosaceous plants
 - Apple, crabapple, pear, hawthorn, mountain-ash, cotoneaster
- Favorable environment
 - Wet weather (but not too wet)
 - Hail (or other wounding)



Dr. Death's Plant Disease Predictions Fire Blight

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/)
- Prune diseased branches

Dr. Death's Plant Disease Predictions Fire Blight

- Control
 - Decontaminate pruning tools (70% alcohol, disinfectants, bleach)
 - Destroy infected materials
 - Burn (where allowed)
 - Deep bury
 - DO NOT over-fertilize with nitrogen

Dr. Death's Plant Disease Predictions Fire Blight

- Control
 - Use bactericides to prevent infections (?)
 - Copper, streptomycin
 - Apply
 - Pre-bloom (copper)
 - During flowering (streptomycin)
 - Apply every
 - Two applications at spaced 4 days apart (copper)
 - Multiple applications spaced 3-4 days apart (streptomycin)

Dr. Death's Plant Disease Predictions Tomato Leaf Blights

- Pathogens
 - 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





Dr. Death's Plant Disease Predictions Tomato 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

Dr. Death's Plant Disease Predictions Tomato Leaf Blights

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

Dr. Death's Plant Disease Predictions Tomato 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

Dr. Death's Plant Disease Predictions Tomato 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

Dr. Death's Plant Disease Predictions Tomato 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)

Dr. Death's Plant Disease Predictions Tomato Leaf Blights

- · Control (late blight)
 - Use fungicides to prevent infections
 - Chlorothalonil, mancozeb
 - Copper
 - Alternate active ingredients (FRAC codes)
 - Start applications based on Blitecast (https://wisconsinpotatoes.com/blog-news/)
 - · Apply at 7-14 day intervals

Dr. Death's Plant Disease Predictions Powdery Mildews

- Pathogens
 - Erysiphe spp.
 - Uncinula spp. Sphaerotheca spp.
 - Phyllactinia spp. Podosphaera spp.
 - Blumeria spp.
 - Brasiliomyces spp.

- Microsphaera spp.

- Oidium spp.
 Ovulariopsis spp.
- Hosts: Virtually anything
- · Favorable environment: High humidity



Dr. Death's Plant Disease Predictions 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

Dr. Death's Plant Disease Predictions 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

Dr. Death's Plant Disease Predictions Diplodia (Sphaeropsis) Tip Blight

- Pathogens: Diplodia spp. (Sphaeropsis spp.)
- · Hosts (major)
 - Austrian pine
 - Other pines: red, jack, Scots, mugo
- · Hosts (minor)
 - Other conifers: cedars, cypresses, firs, spruces, junipers, yews

Dr. Death's Plant Disease Predictions Diplodia (Sphaeropsis) Tip Blight

- Favorable environment – Wet weather (for infection)
 - Drought (for extensive colonization)





Dr. Death's Plant Disease Predictions Diplodia (Sphaeropsis) Tip Blight

- Control
 - DO NOT plant Austrian pines
 - Prevent tree stress, particularly water stress
 - Thin branches to increase airflow
 - Prune diseased branches
 - Decontaminate pruning tools (70% alcohol, disinfectants, bleach)
 - Remove infected cones (?)

Dr. Death's Plant Disease Predictions Diplodia (Sphaeropsis) Tip Blight

- Control
 - Use fungicides to prevent infections
 - Thiophanate-methyl, chlorothalonil
 - Alternate active ingredients (FRAC Codes)
 - Apply from bud break through shoot elongation
 - Apply at 14 day intervals

Dr. Death's Plant Disease Predictions 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)

Dr. Death's Plant Disease Predictions Rhizosphaera Needle Cast

- · Hosts (minor)
 - Pines: Austrian, mugo, eastern white pine
 - Douglas fir
 - Hemlock
 - Balsam fir and other firs
- Favorable environment
 - Wet weather
 - High humidity



Dr. Death's Plant Disease Predictions 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

Dr. Death's Plant Disease Predictions 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

Dr. Death's Plant Disease Predictions Where to Go for Help

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