Talks for the General Public

Dr. Death's Plant Disease Predictions for 2026

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Dr. Death's Plant Disease Predictions
Root/Crown Rots

- Pathogens
  - *Pythium* spp.
  - *Rhizoctonia solani*
  - *Cylindrocarpon* spp.
  - *Phytophthora* spp.
  - *Fusarium* spp.
  - *Thielaviopsis* spp.
- Hosts: Any plant
- Favorable environment: Cool, wet soils






Dr. Death's Plant Disease Predictions
Root/Crown Rots

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

Dr. Death's Plant Disease Predictions
Root/Crown Rots

- Control
  - DO NOT move contaminated soil or plants
  - Decontaminate infested tools, pots, work areas (alcohol, disinfectants, bleach)
  - Pretest soils/mulches/composts
  - Use soil-less potting mixes for containerized plants

Dr. Death's Plant Disease Predictions
Root/Crown Rots

- Control
  - Use fungicides to prevent infections
    - Contract with a professional pesticide applicator
    - PCNB, thiophanate-methyl, fludioxonil, Etridiazole, metalaxyl/mefenoxam, fosetyl-Al
    - Alternate active ingredients
    - Use granular formulations if possible
    - Use during periods of wet weather

Dr. Death's Plant Disease Predictions
Root/Crown Rots

- Control
  - Use biopesticides to prevent infections
    - *Trichoderma*, *Gliocladium*
    - Use for potted plants

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 at the right time of year
  - 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
    - Continue watering for at least three years

Dr. Death's Plant Disease Predictions
Scab (Apple and Pear)

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

Dr. Death's Plant Disease Predictions
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/)

Dr. Death's Plant Disease Predictions
Scab (Apple and Pear)

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

Dr. Death's Plant Disease Predictions
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

Dr. Death's Plant Disease Predictions
Septoria Leaf Spot of Lilac

- Cause: *Septoria* sp.
- Host: Lilac
- Favorable environment: Wet weather

Dr. Death's Plant Disease Predictions
Septoria Leaf Spot of Lilac

- 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 of Lilac

- 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
Gymnosporangium Rusts

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

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
    - "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

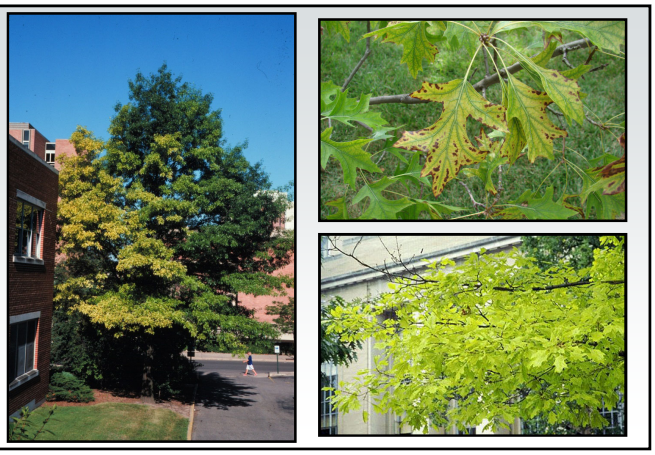
- Control
  - Remove galls
  - Decontaminate pruning tools (70% alcohol, disinfectants, bleach)
  - Destroy infected materials
    - Burn (where allowed)
    - Deep bury

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
  - 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
Fungal Leaf Blights of Vegetables

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

Dr. Death's Plant Disease Predictions
Fungal Leaf Blights of Vegetables

- **Control**
  - Remove and destroy contaminated debris
    - Burn (where allowed)
    - Deep bury
    - Hot compost
  - Move tomatoes to new location

Dr. Death's Plant Disease Predictions
Fungal Leaf Blights of Vegetables

- Control
  - Plant resistant varieties
  - Space plants far apart
  - Mulch around the base of plants
  - DO NOT overmulch

Dr. Death's Plant Disease Predictions
Fungal Leaf Blights of Vegetables

- Control
  - 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
Powdery Mildews

- Pathogens
  - *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

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
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
  - Long periods of needle wetness
  - 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

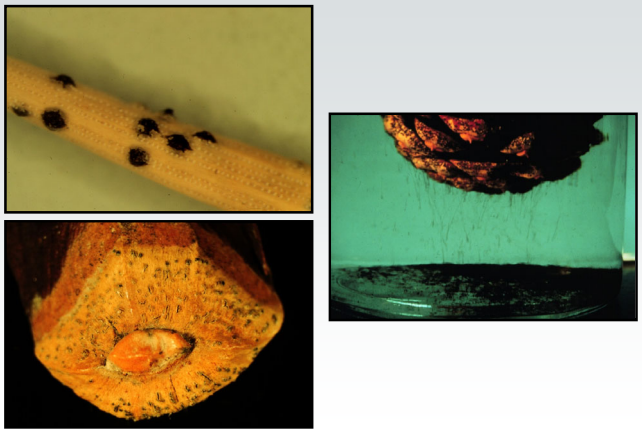
- Control
  - Decontaminate pruning tools (70% alcohol, disinfectants, bleach)
  - Use fungicides to prevent infections
    - Copper, chlorothalonil
    - Alternate active ingredients (FRAC Codes)
    - Start applications at bud break
    - Apply at 3-4 week intervals under favorable conditions

Dr. Death's Plant Disease Predictions
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
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
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https://pddc.wisc.edu
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