Winnebago County Master Gardeners Assn.

Dr. Death's Plant Disease Predictions for 2020

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Dr. Death's Plant Disease Predictions
Tomato Leaf Blights

- Causes
  - *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" (http://www.extension.org/pages/72678/late-blight-management-in-tomato-with-resistant-varieties#.VVNSsPlVhBd)

Dr. Death's Plant Disease Predictions
Tomato Leaf Blights

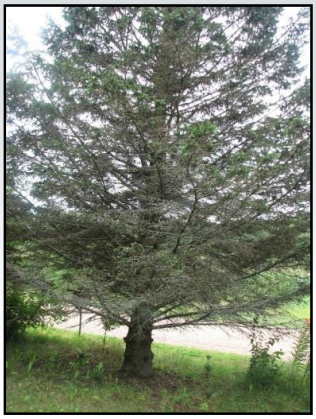
- Control (late blight)
  - Use fungicides to prevent infections
    - Chlorothalonil, mancozeb
    - Copper
    - Alternate active ingredients (FRAC codes)
    - Start applications based on Blitecast (http://www.plantpath.wisc.edu/wivegdis/)
    - Apply at 7-14 day intervals

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, 10% 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
Anthracnose

- Causes
  - *Gloeosporium* spp.
  - *Colletotrichum* spp.
  - *Discula* spp.
  - Many other fungi
- Hosts
  - Any deciduous tree
  - Ash, maple, oak
  - Sycamore
- Favorable environment: Cool, wet weather

Dr. Death's Plant Disease Predictions
Anthracnose

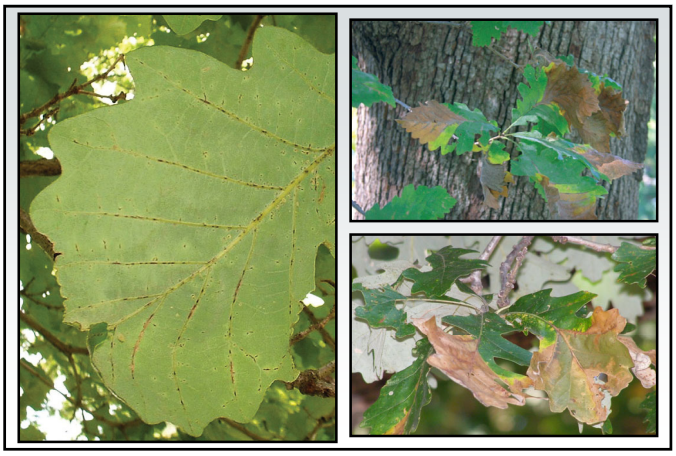
- Control
  - DO NOT panic
  - Remove/destroy diseased leaves and branches
    - Burn (where allowed)
    - Deep bury
    - Hot compost

Dr. Death's Plant Disease Predictions
Anthracnose

- Control
  - Use fungicides to prevent infections
    - Copper, chlorothalonil, mancozeb, thiophanate-methyl
    - Alternate active ingredients (FRAC codes)
    - Apply at bud break, 1/2 and full leaf expansion

Dr. Death's Plant Disease Predictions
Bur Oak Blight

- Cause: *Tubakia iowensis*
- Host: Bur oak
  - *Quercus macrocarpa* var. *oliviformis*
  - *Quercus macrocarpa* var. *macrocarpa*
- Favorable Environment
  - Cool, wet weather
  - Stress?



Dr. Death's Plant Disease Predictions
Bur Oak Blight

- Control
  - Reduce stress
    - Water stress
    - Nutrient stress (chlorosis)
    - Diseases/insect pests
      - Oak wilt
      - Armillaria root disease
      - Leaf diseases (anthracnose, Tubakia leaf spot, etc.)
      - Two-lined chestnut borer

Dr. Death's Plant Disease Predictions
Bur Oak Blight

- Control
  - Use fungicide injections
    - Propiconazole
    - Prophylactic
    - Late May or early June
    - Every 12-24 months

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

- Causes
  - *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.uwex.edu/)
    - "Home Fruit Cultivars for Southern Wisconsin" (https://learningstore.uwex.edu/)
    - "Top Ornamental Crabapples for Wisconsin" (https://pddc.wisc.edu/fact-sheet-listing-all/)

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)

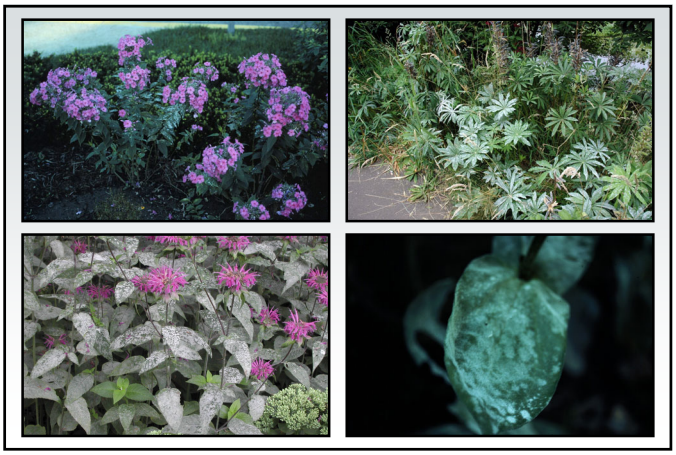
- Control
  - Use fungicides to prevent infections
    - Chlorothalonil, copper, mancozeb, myclobutanil, propiconazole, thiophanate-methyl, sulfur
    - Alternate active ingredients (FRAC codes)
    - Apply from bud break through the end of favorable weather
    - Apply at 7 to 14-day intervals

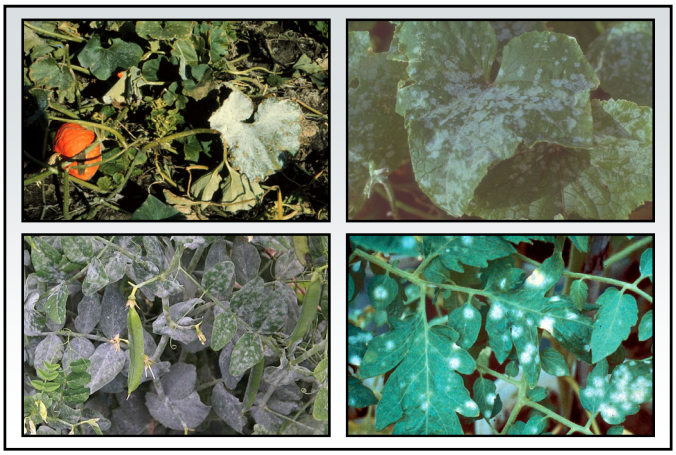
Dr. Death's Plant Disease Predictions
Powdery Mildews

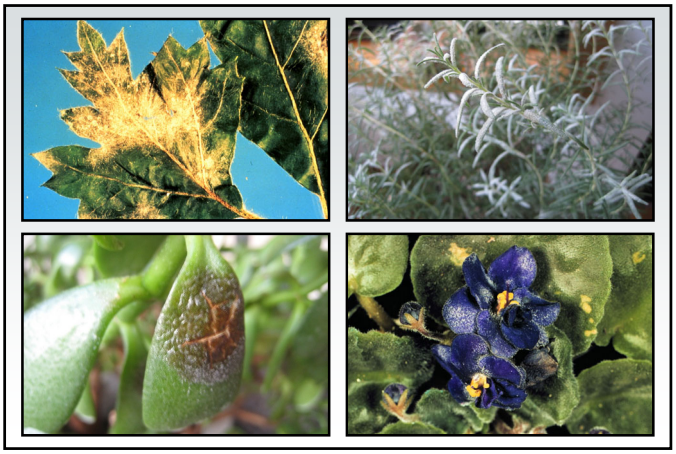
- Causes
  - *Erysiphe* spp.
  - *Uncinula* spp.
  - *Phyllactinia* spp.
  - *Blumeria* spp.
  - *Oidium* spp.
  - *Microsphaera* spp.
  - *Sphaerotheca* spp.
  - *Podosphaera* spp.
  - *Brasiliomyces* spp.
  - *Ovulariopsis* spp.

Dr. Death's Plant Disease Predictions
Powdery Mildews

- Hosts
  - Virtually everything
  - Not conifers
- Favorable environment: High humidity







Dr. Death's Plant Disease Predictions
Powdery Mildews

- Control
  - Remove/destroy diseased leaves
    - Burn (where allowed)
    - Deep bury
    - Hot compost
  - Reduce humidity
    - Plant less densely
    - Thin canopies
  - Use resistant cultivars/varieties

Dr. Death's Plant Disease Predictions
Powdery Mildews

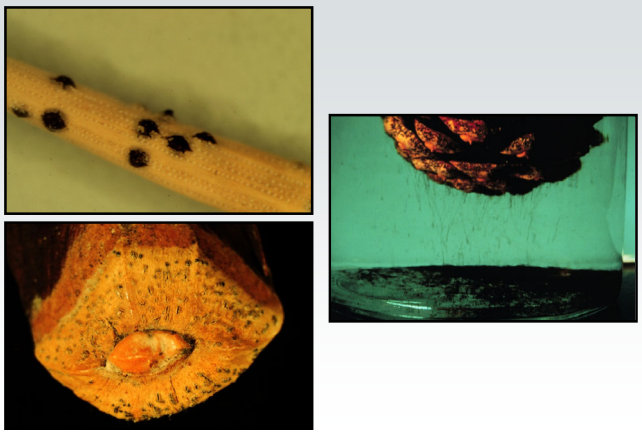
- Control
  - Use fungicides to prevent infections
    - Dinocap, dithiocarbamates, myclobutanil, triadimefon, triforine, sulfur or thiophanate-methyl
    - Baking soda (1.5 Tbsp/gal) and light weight horticultural oil (3 Tbsp/gal)
    - Alternate active ingredients (FRAC codes)
    - Apply when humidity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

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

- Pathogen: *Diplodia pinea* (*Sphaeropsis sapinea*)
- 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, 10% bleach)
  - Remove infected cones (?)

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

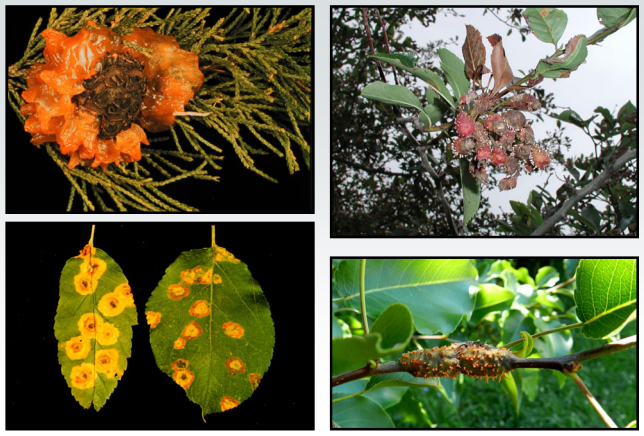
- Control
  - Use fungicides to prevent infections
    - Thiophanate-methyl, chlorothalonil
    - Alternate active ingredients (FRAC Codes)
    - Apply from bud break through shoot elongation
    - Apply at 14 day intervals

Dr. Death's Plant Disease Predictions
Gymnosporangium Rusts

- Pathogens: *Gymnosporangium* spp.
  - *Gymnosporangium juniperi-virginianae* (Cedar-apple rust)
  - *Gymnosporangium globosum* (Cedar-hawthorn rust)
  - *Gymnosporangium clavipes* (Cedar-quince 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
    - "Juniper Diseases" (https://store.extension.iastate.edu/Product/Juniper-Diseases)
    - "Home Fruit Cultivars for Northern Wisconsin" (https://learningstore.uwex.edu/)
    - "Home Fruit Cultivars for Southern Wisconsin" (https://learningstore.uwex.edu/)

Dr. Death's Plant Disease Predictions
Gymnosporangium Rusts

- Control
  - Remove galls
  - Decontaminate pruning tools (70% alcohol, disinfectants, 10% 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
Boxwood Blight

- Cause
  - *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'
    - Common boxwood 'Katerberg' North Star®
    - Korean littleleaf boxwood
      - 'Eseles' Wedding Ring®
      - 'Franklin's Gem'
      - 'Winter Gem'
      - '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

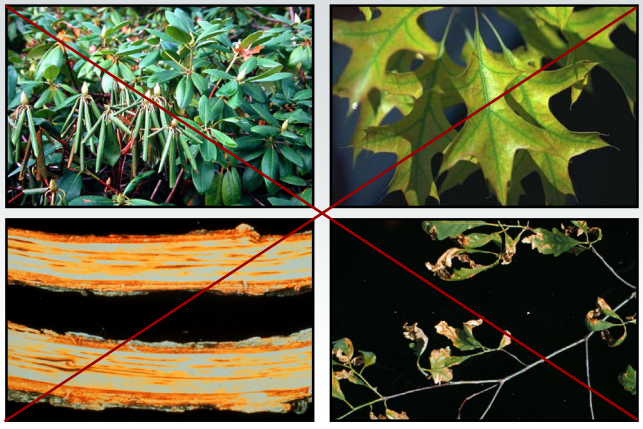
- Control
  - Prune out diseased branches
  - Decontaminate (70% alcohol, commercial disinfectants)
  - Remove and destroy infected plants
    - Burn (where allowed)
    - Deep bury (two feet)/Double bag and landfill
    - DO NOT compost

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
Sudden Oak Death (Ramorum Blight)

- Cause: *Phytophthora ramorum*
- Hosts
  - A wide range of woody and herbaceous ornamentals
  - Rhododendrons/Azaleas
  - Roses ('Double Red Knockout')
  - Viburnums
  - Lilacs
  - Oaks



Dr. Death's Plant Disease Predictions
Sudden Oak Death (Ramorum Blight)

- Control
  - Buy woody ornamentals from a reputable source
  - Inspect plants prior to purchase for symptoms of sudden oak death
  - Keep new plants isolated from established plants

Dr. Death's Plant Disease Predictions
Sudden Oak Death (Ramorum Blight)

- **Control**
  - **Remove and destroy infected plants**
  - **Decontaminate (70% alcohol, 10% bleach, commercial disinfectants)**
  - **Contact the PDDC if you believe you have seen this disease**

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
pddc@wisc.edu
https://pddc.wisc.edu
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