

## Wisconsin Orchid Society

### Crown Rots and Viruses and Gray Mold, Oh My!

(Common Diseases of Orchids and their Management)

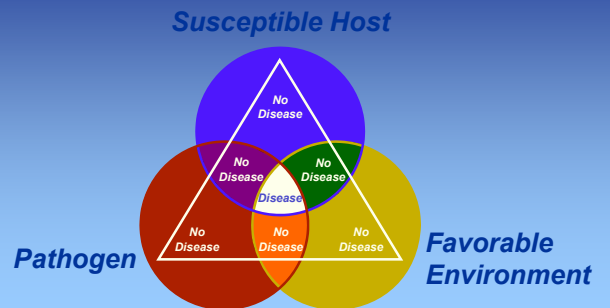
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## Orchid Diseases The Disease Triangle



## Orchid Diseases Black Rot

- Pathogens
  - *Phytophthora cactorum*
  - *Pythium ultimum*
- Favorable environment
  - Excessive moisture
  - Cooler temperatures



## Orchid Diseases Black Rot

- Control
  - Avoid symptomatic plants
  - Isolate new plants from established plants
  - Decontaminate pots, work surfaces, tools
    - 10% bleach
    - 70% alcohol
    - Commercial disinfectants
  - Use a proper soil mix (i.e., NO garden soil)

## Orchid Diseases Black Rot

- Control
  - DO NOT overwater
  - Limit water splash
  - Promote good air circulation
  - Remove diseased plant material and debris

## Orchid Diseases Black Rot

- **Control**
  - Use fungicides to prevent infections
    - Powlitices
      - Copper sulfate + lime
      - Cinnamon
    - Spray treatments
      - Metalaxyl/mefenoxam, fosetyl-AI, etridiazole
      - Mancozeb, captan, “Physan 20”
  - Alternate active ingredients (FRAC codes)
  - Apply according to label instructions

## Orchid Diseases Leaf Spots/Blights

- **Pathogens**
  - Phyllosticta spp.
  - Colletotrichum spp.
  - Cercospora spp.
  - Septoria spp.
  - Guignardia spp.
  - Diplodia spp.
  - Uredo spp.
  - Pseudomonas spp.
- **Favorable environment**
  - Long “leaf wetness” periods
  - High humidity



## Orchid Diseases Leaf Spots/Blights

- **Control**
  - Avoid symptomatic plants
  - Isolate new plants from established plants
  - DO NOT get water on leaves
  - DO NOT overwater
  - Promote good air circulation
  - Remove diseased plant material and debris (where possible)

## Orchid Diseases Leaf Spots/Blights

- **Control**
  - Use fungicides to prevent infections
    - Chlorothalonil, copper-containing fungicides, mancozeb, thiophanate-methyl, fludioxonil, captan, ferbam
  - Apply to protect new leaves
  - 7-14 day application interval
  - Alternate active ingredients (FRAC codes)
  - Apply during periods of high moisture

## Orchid Diseases Botrytis Blight/Gray Mold

- **Pathogen:** Botrytis cinerea
- **Favorable environment**
  - Long “leaf wetness” periods
  - High humidity



## Orchid Diseases Botrytis Blight/Gray Mold

- **Control**
  - Isolate new plants from established plants
  - DO NOT get water on flowers
  - DO NOT overwater
  - Promote good air circulation
  - Remove diseased plant material and debris

## Orchid Diseases Botrytis Blight/Gray Mold

- **Control**
  - Use fungicides to prevent infections
    - Chlorothalonil, copper-containing fungicides, fludioxonil, iprodione, mancozeb, maneb, thiophanate-methyl, triflumizole, vinclozolin, “Physan 20”
    - 7-14 day application interval
    - Alternate active ingredients (FRAC codes)
    - Apply during periods of high moisture and when “perfect” flowers are desired

## Orchid Diseases Viruses

- **Pathogens**
  - Odontoglossum ringspot virus (ORSV)
  - Cymbidium mosaic virus (CyMV)
  - Tobacco mosaic virus (TMV)
  - Cucumber mosaic virus (CMV)
  - Impatiens necrotic spot virus (INSV)
  - Tomato spotted wilt virus (TSWV)
  - Others

## Orchid Diseases Viruses

- **Pathogens**
  - Odontoglossum ringspot virus (ORSV)
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  - Others

## Orchid Diseases Viruses

- **Favorable environment:** None
- **Transmission**
  - Touch: TMV
  - Mechanical: ORSV, CyMV
  - Aphid: CMV
  - Thrips: INSV, TSWV



## Orchid Diseases Viruses

- **Control**
  - Avoid symptomatic plants
  - Isolate new plants from established plants
  - Request testing of plants prior to purchase
    - Enzyme-Linked Immunosorbent Assay (ELISA)
    - Dip-stick tests
    - Polymerase Chain Reaction (PCR)
  - Discard infected plants

## Orchid Diseases Viruses

- **Control**
  - Decontaminate contaminated materials
    - 1% sodium dodecyl sulfate (sodium lauryl sulfate) + 1% Alconox® (2½ Tbsp + 2¼ Tbsp/gal)
    - 20% low fat dry milk (Carnation®) + 0.1% polysorbate 20 (9½ cups + ¼ tsp/gal)
    - Trisodium phosphate (14 dry oz/gal)
    - Alcohol dip followed by flaming

## Orchid 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@plantpath.wisc.edu](mailto:pddc@plantpath.wisc.edu)  
<http://pddc.wisc.edu>  
 Follow the clinic on Twitter @UWPDDC