Wisconsin Orchid Society

Crown Rots and Viruses and Gray Mold, Oh My!
(Common Diseases of Orchids and their Management)

Brian D. Hudelson
Department of Plant Pathology
University of Wisconsin-Madison/Extension

Orchid Diseases
The Disease Triangle

Susceptible Host

Favorable Environment

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
  - Poultices
    - Copper sulfate + lime
    - Cinnamon
  - Spray treatments
    - Metalaxyl/mefenoxam, fosetyl-Al, etridiazole
    - Mancozeb, captan, “Physan 20”
  - Alternate active ingredients (FRAC codes)
  - Apply according to label instructions

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

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

**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)

**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

**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

**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

**Favorable environment:** None

**Transmission**
- Touch: TMV
- Mechanical: ORSV, CyMV
- Aphid: CMV
- Thrips: INSV, TSWV

---

#### 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

**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 + 2½ Tbsp/gal)
    - 20% low fat dry milk (Carnation®) +
    - 0.1% polysorbate 20 (9 ⅛ cups + ¾ 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**

**http://pddc.wisc.edu**

**Follow the clinic on Twitter @UWPDDC**