Advanced Master Gardener Training

Orchid Diseases

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Extension
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NPDN
National Plant Diagnostic Network

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1

Orchid Diseases
Black Rot

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

2

3

Orchid Diseases
Black Rot

- **Control**
  - **Avoid symptomatic plants**
  - **Isolate new plants from established plants**
  - **Decontaminate pots, work surfaces, tools (70% alcohol, disinfectants, 10% bleach)**
  - **Use a proper potting mix**
  - **DO NOT use garden soils**

4

Orchid Diseases
Black Rot

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

5

Orchid Diseases
Black Rot

- **Control**
  - **Use fungicides to prevent infections**
    - **Poultices (?)**
      - **Copper sulfate + lime**
      - **Cinnamon**
    - **Spray treatments**
      - **Metalaxyl/mefenoxam, fosetyl-Al, etridiazole**
      - **Mancozeb, captan**
    - **Alternate active ingredients (FRAC codes)**
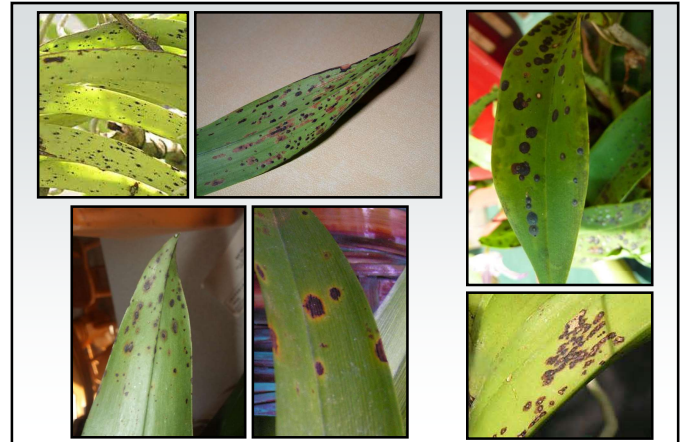   - **Apply according to label instructions**

6

Orchid Diseases
Leaf Spots/Blights

- **Pathogens**
  - *Phyllosticta* spp.
  - *Colletotrichum* spp.
  - *Cercospora* spp.
  - *Septoria* spp.
  - *Guignardia* spp.
  - *Diplodia* spp.
  - *Uredo* spp.
  - *Pseudomonas* spp.
- **Favorable environment**
  - **Excessive moisture**
  - **High humidity**

7

8

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)

9

Orchid Diseases
Leaf Spots/Blights

- **Control**
  - **Use fungicides to prevent infections**
    - Chlorothalonil, copper, 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

10

Orchid Diseases
Botrytis Blight/Gray Mold

- **Pathogen: *Botrytis cinerea***
- **Favorable environment**
  - **Excessive moisture**
  - **High humidity**

11

12

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**

13

Orchid Diseases
Botrytis Blight/Gray Mold

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

14

Orchid Diseases
Viruses

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

15

Orchid Diseases
Viruses

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

16

17

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**

18

Orchid Diseases
Viruses

- **Control**
  - **Dinfest contaminated materials**
    - **1% sodium dodecyl sulfate (sodium lauryl sulfate) + 1% Alconox® (2½ Tbsp + 2¾ Tbsp/gal)**
    - **Trisodium phosphate (14 dry oz/gal)**
    - **20% low fat dry milk (Carnation ®) + 0.1% polysorbate 20 (9⅛ cups + ¾ tsp/gal)**
    - **Alcohol dip followed by flaming**

19

Orchid Diseases
Where to Go for Help

Plant Disease Diagnostics Clinic
Department of Plant Pathology
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20