Brown County Greenhouse Seminar

New and Emerging Diseases
in Greenhouse Plants

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New and Emerging Diseases
Impatiens Downy Mildew

• Causes
  – *Plasmopara obducens*
  – *Bremiella sphaerosperma*

• Hosts
  – Standard garden impatiens (*I. walleriana*)
  – Balsam impatiens (*I. balsamina*)
  – Jewelweed (*I. pallida, I. capensis*)
  – New Guinea impatiens (*I. hawkeri*)
    (resistant/tolerant)

New and Emerging Diseases
Impatiens Downy Mildew

• Favorable Environment
  – Cool conditions (59 - 73 °F)
  – Long leaf wetness periods (> 6 hrs)
  – High humidity

New and Emerging Diseases
Impatiens Downy Mildew

• Control
  – Start with clean transplants and seed
  – Keep materials from different sources physically separated
  – DO NOT overcrowd plants (i.e., reduce humidity)
  – DO NOT overhead water (i.e., limit leaf wetness periods)
  – Grow tolerant/resistant/immune plants
New and Emerging Diseases
**Impatiens Downy Mildew**

- **Control**
  - Scout frequently
  - Bag and discard affected plants
    - Symptomatic plants
    - Asymptomatic surrounding plants
  - Disinfect contaminated areas
    - Commercial disinfectants
    - 10% bleach
    - 70% alcohol

- **Symptomatic plants**
- **Asymptomatic surrounding plants**

- **Disinfest contaminated areas**
  - Commercial disinfectants
  - 10% bleach
  - 70% alcohol

New and Emerging Diseases
**Impatiens Downy Mildew**

- **Control**
  - Use fungicides to prevent infections
    - mefenoxam, fluopicolide, potassium phosphite, mancozeb, pyraclostrobin + boscalid, fluoxastobin, cyazofamid, dimethomorph, fenamidone, azoxystrobin
    - Alternate active ingredients (FRAC codes)
    - Apply at 7 day application intervals
  - Move (i.e., rotate) impatiens production

New and Emerging Diseases
**Late Blight**

- **Cause:** *Phytophthora infestans*

- **Hosts**
  - Tomato
  - Potato

- **Environmental trigger**
  - Long periods of leaf wetness
  - High humidity

New and Emerging Diseases
**Late Blight**

- **Control**
  - Start with clean transplants
  - Keep materials from different sources physically separated
  - DO NOT overcrowd plants
    (i.e., reduce humidity)
  - DO NOT overhead water
    (i.e., limit leaf wetness periods)

New and Emerging Diseases
**Late Blight**

- **Control**
  - Grow resistant tomato varieties
New and Emerging Diseases

Late Blight

- Control
  - Scout frequently
  - Bag and discard affected plants
    - Symptomatic plants
    - Asymptomatic surrounding plants
  - Disinfect contaminated areas
    - Commercial disinfectants
    - 10% bleach
    - 70% alcohol

New and Emerging Diseases

Viral Diseases

- Pathogens
  - Many, with more discovered all the time
  - Wide-range
    - Impatiens necrotic spot virus (INSV)
    - Tomato spotted wilt virus (TSWV)
    - Tobacco mosaic virus (TMV)
    - Cucumber mosaic virus (CMV)
    - Tobacco rattle virus (TRV)

- Pathogens
  - Narrow-range
    - Cymbidium mosaic virus (CyMV)
    - Odontoglossum ringspot virus (ORSV)
    - Hosta virus X (HVX)
New and Emerging Diseases
Viral Diseases

- **Control**
  - Start with clean materials
  - Inspect plants prior to purchase for viral symptoms
  - Test for viruses prior to purchase
  [Agdia, Inc. (www.agdia.com)]

New and Emerging Diseases
Viral Diseases

- **Control**
  - DO NOT smoke around plants
  - Control insects
  - Keep weeds under control
  - Remove and destroy infected plants/debris

New and Emerging Diseases
Viral Diseases

- **Control**
  - Disinfest tools, pots, bench tops, etc.
  - Sodium dodecyl sulfate (sodium lauryl sulfate) + Alconox® (1% + 1%)
  - Trisodium phosphate
  - Alcohol dip followed by flaming
  - Decontaminate recycled water
  - Wash hands regularly, particularly after smoking
  - No chemical treatments for plants are available

New and Emerging Diseases
Ralstonia Wilt

- **Cause:** Ralstonia solanacearum
  - races
  - biovars
- **Hosts**
  - Geranium
  - Many other herbaceous plants
  - Potato

New and Emerging Diseases
Ralstonia Wilt

- **Control**
  - Start with clean transplants
  - Keep materials from different sources physically separated
  - Disinfest pruning tools
    - Commercial disinfectants
    - 10% bleach
    - 70% alcohol
  - Disinfest hands when working with plants
New and Emerging Diseases

**Ralstonia Wilt**

- **Control**
  - If you suspect you have the disease, contact the PDDC/WI DATCP
  - Confirm the disease
  - Remove symptomatic plants
  - Remove co-mingled plants
  - Remove contaminated plant debris
  - Disinfest greenhouses after production

**Foliar Nematodes**

- **Cause:** *Aphelenchoides* spp.
- **Hosts**
  - Wide host range
  - Houseplants: African violets, ferns, mums, begonias
  - Landscape plants: Hosta, saxifrage relatives

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**New and Emerging Diseases**

**Foliar Nematodes**

- **Control**
  - Start with clean propagation materials
  - Keep materials from different sources physically separated
  - Disinfest tools, pots, benches, etc.
    - Commercial disinfectants
    - 10% bleach
    - 70% alcohol
  - Avoid overhead irrigation

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**New and Emerging Diseases**

**Foliar Nematodes**

- **Control**
  - Remove symptomatic plants
  - Remove contaminated plant debris
  - Disinfest contaminated areas
  - No chemical treatments for plants are available
  - Try hot water treatments (10 minutes at 125°F)

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**Where to Go for Help**

**Plant Disease Diagnostics Clinic**

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