Common Sense Management of Game Changing Ornamental Diseases

How do you tell if a plant disease is noteworthy?

Ornamental diseases are game changers when:

- Cause widespread damage or death
- Likelihood of infection is ever present
- Negative publicity leads to decreased sales
- Pathogen is exotic and/or invasive
- Pathogen is long lived in soil, media, water
- Regulated by state and federal agencies
- Leads to increased costs

Downy Mildew of Impatiens

Downy mildew will continue to be a threat to garden impatiens
Impatiens Downy Mildew/Knoxville - Oct 2015

Bounce Impatiens (pink) resistant to downy mildew; white garden impatiens are at risk

Downy Mildew of Impatiens

By late October, downy mildew had damaged the garden impatiens.

75ft away, these garden impatiens were not affected by downy mildew.

Alternative Plants to avoid impatiens downy mildew

- Coleus
- Begonia
- New Guinea Impatiens
- SunPatiens
- Bounce and Big Bounce IMpatiens
- Torenia

SunPatiens poor growth, root knot nematode damage
Root knot nematodes in root tissue.

**Root Knot Management**
- Resistant Shade Plants – Torenia
- Remove and replace soil
- Solarize infested Beds
- Keep eyes open for Biological Nematicides

**Coleus Downy Mildew**
Basil downy mildew was widespread in 2015 in the U.S. The causal fungus is unique to basil.

**Downy Mildew/Basil/Sept 2015**
Downy mildew spreads quickly with little warning.

Sectional yellowing and angular leaf spots are indications of downy mildew.
Common Sense Management

- Starts with awareness that DM is still a threat.
- Different fungus for each crop
- Seed transmitted on Basil
- Wind blown spores > long distance spread
- Infected plants > over looked > know symptoms
- Fungicides protect healthy plants

Phytophthora root rot

Crown Rot of Liriope

Phytophthora or Fusarium are capable of causing crown rot of liriope.
Common Sense Management for Phytophthora

- Inspect plants for foliar blight, crown rot, root rot.
- Muddy pots > possible Phytophthora contamination
- Water management
- Site prep
- Fungicides protect healthy plants

Boxwood blight

Symptoms

Circular leaf spots > blighted foliage

Boxwood Blight Prevention

- Awareness
- Inspection
- Isolation
- Inspection
Boxwood Blight in the Southeast in 2015

- Found in multiple big box stores in Alabama
- Found in landscape plantings in Alabama
- Found in a large wholesale nursery in Florida
- Found in garden centers & landscape plantings in Tennessee

Susceptibility of Commercial Varieties to Box Blight

<table>
<thead>
<tr>
<th>Variety</th>
<th>Relative Leaf Area Diseased</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. sempervirens 'Suffruticosa' (Japanese box)</td>
<td>Moderate susceptible</td>
</tr>
<tr>
<td>B. sempervirens 'Hedges'</td>
<td>Moderately tolerant</td>
</tr>
<tr>
<td>B. sempervirens 'Green Mountain'</td>
<td>Tolerant</td>
</tr>
<tr>
<td>B. sempervirens 'Green Giant'</td>
<td>Tolerant</td>
</tr>
<tr>
<td>B. sempervirens 'Green Valley'</td>
<td>Tolerant</td>
</tr>
<tr>
<td>Pachysandra japonica 'Japonica'</td>
<td>Tolerant</td>
</tr>
<tr>
<td>Sarcococca confusa 'Suffruticosa'</td>
<td>Tolerant</td>
</tr>
</tbody>
</table>

Kelly Ivors, Cal Poly

Hosts in the Buxaceae Family

- Buxus species/cultivars
- Pachysandra species
- Sarcococca species (sweet box)

The “Problem” of Tolerant Boxwoods

- Not immune
- Fungus can spread from tolerant boxwoods to nearby susceptible species/cultivars

Beware of boxwood blight: Protect your plants from fungal disease

Boxwood gets a makeover

Boxwood blight has come to Georgia

Boxwood blight harming Piedmont hedges
**Sticky, bundles of spores**
Spread is primarily through the shipment of infected nursery stock.

**Survival of the boxwood Blight Fungus**
- Fungus can survive in leaf tissue for up to 5 years.
- Fungus forms microsclerotia (tightly bound hyphae)

**Boxwood Blight – leaf spots**

**Boxwood Blight Stem Lesions**
If leaves aren’t present, look for purple to black lesions on twigs.

**Fungicides for Box Blight**

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Company</th>
<th>Active Ingredient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daconil Weatherstik</td>
<td>Syngenta</td>
<td>Chlorothalonil</td>
</tr>
<tr>
<td>Spectro 90WDG</td>
<td>Nufarm</td>
<td>Chlorothalonil + Thiophanate methyl</td>
</tr>
<tr>
<td>Concert II</td>
<td>Syngenta</td>
<td>Chlorothalonil + Propiconazole</td>
</tr>
<tr>
<td>Torque</td>
<td>Nufarm</td>
<td>Tebuconazole</td>
</tr>
<tr>
<td>Tourney 50WDG</td>
<td>Valent</td>
<td>Metconazole</td>
</tr>
<tr>
<td>Medallion WDG</td>
<td>Syngenta</td>
<td>Fludioxonil</td>
</tr>
</tbody>
</table>

Research by Dr. Kelly Ivors, Cal Poly (formerly of N.C. State Univ)

**Landscape Prevention**
- Inspect all incoming plants for symptoms
- Isolate new plants for 2-4 weeks
- Have suspect plants examined
- Pruning tools should be disinfected when moving from one property to another
- If boxwood blight is in your locale – disposable booties, tyvek suits
Case Study: Boxwood Blight
Boxwood blight spread in this garden after the introduction of infected plants.

Removal of infected Plants
Infected plants were cut at ground level, bagged and taken to a landfill.

Save or Sacrifice?
It’s a tough call as to try to save or sacrifice a beautiful specimen plant that is infected with boxwood blight.

After two fungicide cover sprays
Boxwood blight was still actively growing and sporulating after two cover sprays. Fungicides work best at prevention.

Boxwood Blight after Two Fungicide cover Sprays
Calonectria the causal fungus of boxwood blight was still actively growing and sporulating after two cover sprays.

Other Boxwood Diseases
- Volutella blight
- Boxwood canker
- Phytophthora root rot
Volutella Blight

Volutella blight causes some leaf and twig death.

Boxwood canker/Sept 2014

Black stem of boxwood caused by Colletotrichum theobromicola.

Rose Rosette Virus

- Vectored by an eriophyid mite
- Widely reported on multiflora rose since 1970’s
- Particularly on shrub roses
- Symptoms show up 2-3 yrs after planting
- Death can occur within 2-3 yrs of infection
- No curative treatment
- USDA funds 5 yr research project, 2015
Rose Rosette, a virus disease

Rose Rosette continues to be a threat to garden roses.

Eriophyd mites are the vector for the rose rosette virus

Infected roses should be removed immediately or risk rapid spread and loss of all roses in a planting.

Rose rosette research continues.
Questions?
Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development.
University of Tennessee Institute of Agriculture, U.S. Department of Agriculture and county governments cooperating.
UT Extension provides equal opportunities in programs and employment.