

U-EXTENSION
INSTITUTE OF AGRICULTURE
THE UNIVERSITY OF TENNESSEE

Common Sense Management of Game Changing Ornamental Diseases

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How do you tell if a plant disease is noteworthy?

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BOXWOOD BLIGHT

ANLA

Assess Health Case Relevance Regulation ANLA's Disinfectant Approved to Federal Invasive

ANLA Today » Pest & Diseases » Boxwood Blight

BOXWOOD BLIGHT

October 17, 2012 07:48 AM ET

Some Boxwood Varieties Show Tolerance to Blight

Posted by: [Joe Blachoff](#)

A recent report from the North Carolina State University Cooperative Extension showed considerable variability in the susceptibility of Boxwoods (*Buxus* spp.) to Boxwood Blight (*Cylindrocladium pseudonaviculatum*). The researchers evaluated twenty-four varieties and

Latest Boxwood Blight

- [Boxwood Blight and TDM Proposals Submitted to USDA](#)
- [Soil Surface Flaming Kills Boxwood Blight Spreading Structures](#)
- [Some Boxwood Varieties Show Tolerance to Blight](#)
- [The Boxwood Blight Working Group adds Pachyandra to BMPs](#)
- [Boxwood Blight Found to Infect Pachyandra in the Landscape](#)

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



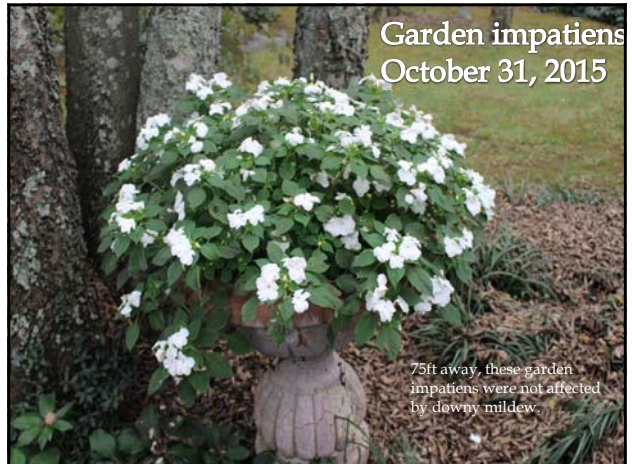
Downy Mildew of Impatiens



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



Garden impatiens
October 31, 2015



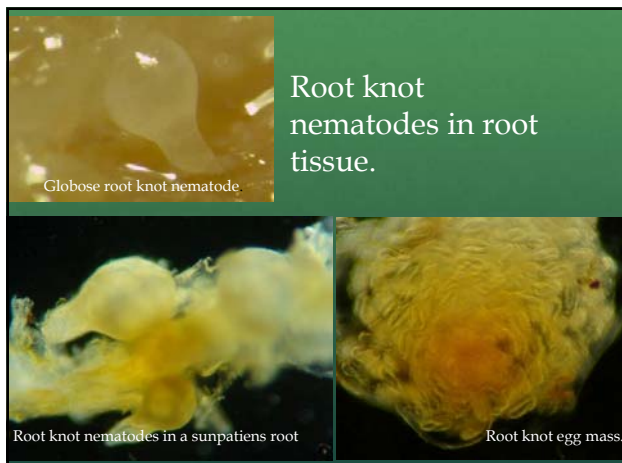
75ft away, these garden impatiens were not affected by downy mildew.

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 Management

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

Coleus Downy Mildew



Downy mildew on Coleus 'Wasabi'

Downy Mildew of Basil

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



Downy Mildew/Basil



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

Downy Mildew/Basil/Sept 2015



Downy mildew spreads quickly with little warning

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 Diseases



Phytophthora root rot



Crown Rot of Liriope



Phytophthora or Fusarium are capable of causing crown rot of liriope.

Phytophthora root rot



Phytophthora Root Rot



Phytophthora Ramorum Blight

A Under moist conditions, sporangia are released on infected leaves.

B Sporangia settle on leaves and bodies, infecting susceptible plant material, germinating, and infecting.

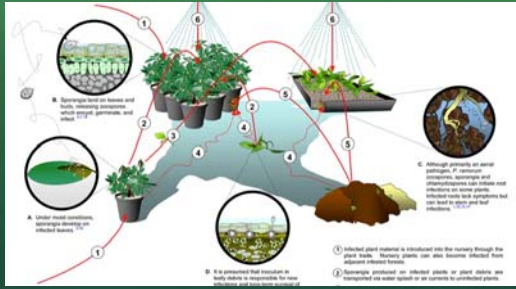
C Although generally an aerial pathogen, it is also spread by plant material and plant debris. Infected plants can infect and infecting can move from infected roots back up through the plant to infect new plant material.

D It is presumed that inoculum in body water is responsible for long distance spread of the pathogen.

E Infected plant material is introduced into the nursery through the plant trade. Nursery plants can also become infected from adjacent infected forests.






F Sporangia released on infected plants or plant debris are transported on water sprays or on currents in uninfected plants.

Parke and Lucas, APS Net



Systems Approach - Safe Procurement and Production Manual

Publications » Safe Procurement and Production Manual

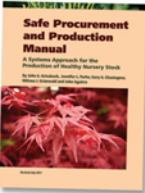
Safe Procurement and Production Manual

Manual outlines pest and pathogen prevention methods

The Oregon Association of Nurseries has published the "Safe Procurement and Production Manual," a 106-page guide to producing healthy nursery stock by using a systems approach. A new revised version is available online now as a PDF download, at no cost. A print version is available from the OAN office. 503-682-5089 or 888-283-7219.

When it comes to preventing the introduction and spread of plant pests and pathogens, a proactive approach that intelligently targets areas of highest risk is better than reacting to things as they happen. This easy-to-follow book helps growers evaluate their own nursery operations. It contains best practices that are proven to be effective at reducing risks from plant pests and pathogens. Different chapters of the book address the various components of plant production, from propagation to final shipment.

» Download the [Safe Procurement and Production Manual\(PDF\)](#).
» Download treatment options for waterborne pathogens in nursery and greenhouse irrigation systems [here](#)



Publications » Safe Procurement and Production Manual

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Safe Procurement and Production Manual

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- 
- Boxwood
Blight

Circular leaf spots > blighted foliage



- Awareness
- Inspection
- Isolation
- Inspection

Boxwood blight: A serious problem, says OSU extension plant pathology specialist

Home & Garden

Boxwood gets a makeover

ODDS & ENDS

Boxwood blight has come to Georgia
Posted: July 6, 2014 - 12:00am

Beware of boxwood blight: Protect your plants from fungal disease

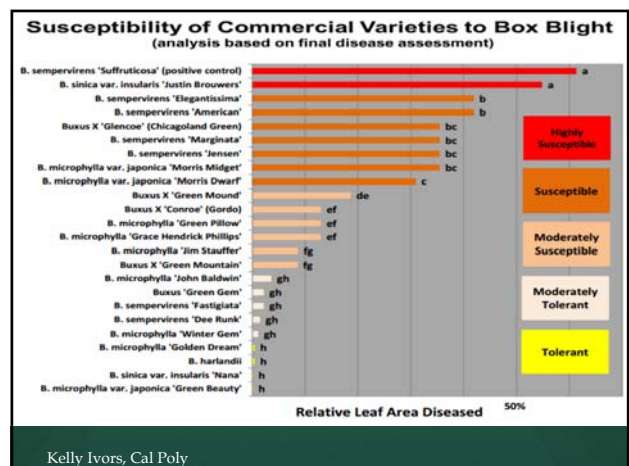
Boxwood blight harming Piedmont hedges

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

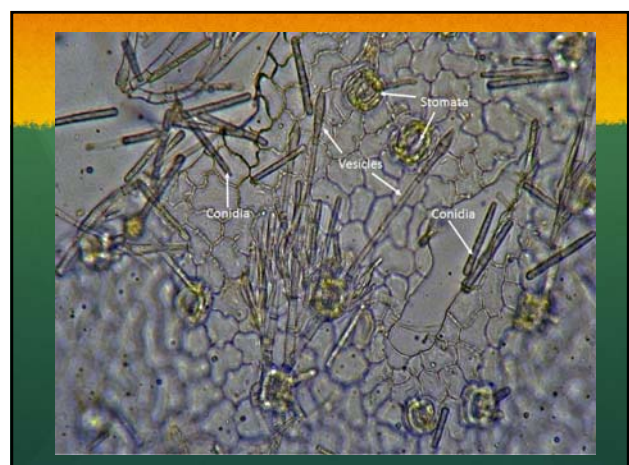
Hosts in the Buxaceae Family

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

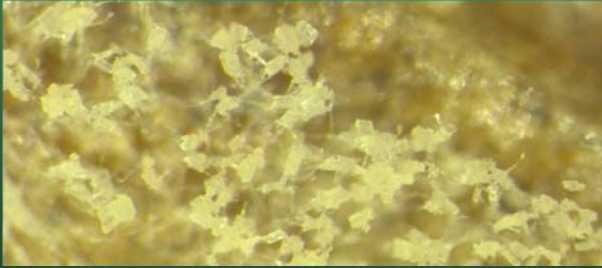


The "Problem" of Tolerant Boxwoods

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



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

Trade Name	Company	Active Ingredient
Daconil Weatherstik	Syngenta	Chlorothalonil
Spectro 90WDG	Nufarm	Chlorothalonil + Thiophanate methyl
Concert II	Syngenta	Chlorothalonil + Propiconazole
Torque	NuFarm	Tebuconazole
Tourney 50 WDG	Valent	Metconazole
Medallion WDG	Syngenta	Fludioxonil

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 active after two cover sprays of a fungicide. 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.

Volutella blight/boxwood



Boxwood canker/ Sept 2014



Black stem of boxwood caused by *Colletotrichum theobromicola*

Rose Rosette



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



Rose rosette continues to be a threat to garden roses.

Rose Rosette in a mass planting of Knockout Rose



Eriophyid mites are the vector for the rose rosette virus



Spread of Rose Rosette



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

Rose Rosette Research



Rose rosette research continues



Questions?

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