

Let's Get Green and Growing

2014 Plant Disease Forecast

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2014 Plant Disease Forecast Powdery Mildews

• Cause

- *Erysiphe* spp. – *Microsphaera* spp.
- *Uncinula* spp. – *Sphaerotheca* spp.
- *Phyllactinia* spp. – *Podosphaera* spp.
- *Blumeria* spp. – *Brasiliomyces* spp.
- *Oidium* spp. – *Ovulariopsis* spp.

• Hosts: Virtually everything

• Environmental trigger: High humidity



2014 Plant Disease Forecast Powdery Mildews

• Control

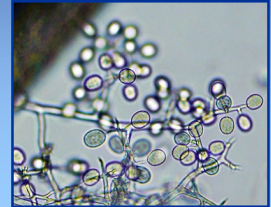
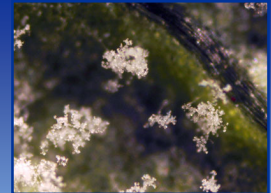
- Remove diseased plant material and debris
 - Burn (where allowed)
 - Deep bury
 - Hot compost
- Reduce humidity
 - Plant less densely
 - Thin existing stands
- Use resistant cultivars/varieties

2014 Plant Disease Forecast Powdery Mildews

- **Control**
 - Use fungicides to prevent infections
 - Dinocap, dithiocarbamates, myclobutanil, triadimefon, triforine, thiophanate-methyl, or sulfur
 - Baking soda (1.5 Tbsp/gal) and light weight horticultural oil (3 Tbsp/gal)
 - Alternate active ingredients (FRAC Codes)
 - Apply when humidity >60-70%
 - 7-14 day application interval

2014 Plant Disease Forecast Impatiens Downy Mildew

- **Cause:** Plasmopara obducens
- **Hosts**
 - Standard garden impatiens (I. walleriana)
 - Balsam impatiens (I. balsamina)
 - Jewelweed (I. pallida, I. capensis)
 - New Guinea impatiens (I. hawkeri) (resistant/tolerant)
- **Environmental trigger:** Wet weather



2014 Plant Disease Forecast Impatiens Downy Mildew

- **Control**
 - Grow tolerant/resistant/immune plants
 - Start with clean transplants and seed
 - Keep materials from different sources physically separated
 - DO NOT grow impatiens in the same area every year
 - DO NOT overcrowd plants
 - DO NOT overhead water

2014 Plant Disease Forecast Impatiens Downy Mildew

- **Control**
 - Watch for disease on a regular basis
 - Bag and discard affected plants
 - Symptomatic plants
 - Asymptomatic surrounding plants
 - Disinfest contaminated materials
 - 10% bleach
 - 70% alcohol
 - Commercial disinfectants

2014 Plant Disease Forecast Impatiens Downy Mildew

- **Control**
 - Use fungicides to prevent infections
 - Mancozeb
 - Apply at 7 day application intervals

2014 Plant Disease Forecast Tomato Leaf Blights

- **Causes**
 - Alternaria solani (early blight)
 - Septoria lycopersici (Septoria leaf spot)
 - Phytophthora infestans (late blight)
- **Hosts**
 - Tomato
 - Potato (early blight, late blight)
- **Environmental trigger: Wet weather**



2014 Plant Disease Forecast Tomato Leaf Blights

- **Control (early blight, Septoria leaf spot)**
 - Remove and destroy infested debris
 - Move tomatoes to new location (?)
 - Plant resistant varieties (?)
 - Space plants far apart
 - DO NOT overhead water
 - DO NOT overmulch
 - Remove infected leaf tissue (?)

2014 Plant Disease Forecast Tomato Leaf Blights

- **Control (early blight, Septoria leaf spot)**
 - Use fungicides to prevent infections
 - Chlorothalonil, copper
 - Applications every 7-14 days

2014 Plant Disease Forecast Tomato Leaf Blights

- **Control (late blight)**
 - Remove and destroy
 - Infected plants, fruits, tubers
 - Volunteer tomato and potato plants
 - Weed hosts
 - **DO NOT** use last year's potatoes as seed potatoes
 - **DO** use certified seed potatoes

2014 Plant Disease Forecast Tomato Leaf Blights

- **Control (late blight)**
 - Grow resistant tomato varieties
 - 'Better Boy', 'Golden Sweet', 'Green Zebra', 'Juliet', 'Legend', 'Magic Mountain', 'Matt's Wild Cherry', 'Pruden's Purple', 'Regal Plum', 'Roma', 'Slava', 'Stupice', 'Sun Sugar', 'Wapsipinicon', 'Wisconsin 55'

2014 Plant Disease Forecast Tomato Leaf Blights

- **Control (late blight)**
 - Use fungicides to prevent infections
 - Chlorothalonil, copper
 - Applications every 7-14 days

2014 Plant Disease Forecast Virus Diseases

- **Causes**
 - Many and varied
 - Tobacco mosaic virus (TMV)
 - Cucumber mosaic virus (CMV)
 - Impatiens necrotic spot virus (INSV)
 - Hosta virus X (HVX)
 - Tobacco rattle virus (TRV)
- **Hosts: Anything and everything**

2014 Plant Disease Forecast Virus Diseases

- **Environmental trigger: None**
- **Transmission**
 - Touch (TMV)
 - Mechanical injury (HVX)
 - Insects (CMV, INSV)
 - Nematodes (TRV)
 - Grafting
 - Seed





2014 Plant Disease Forecast Virus Diseases

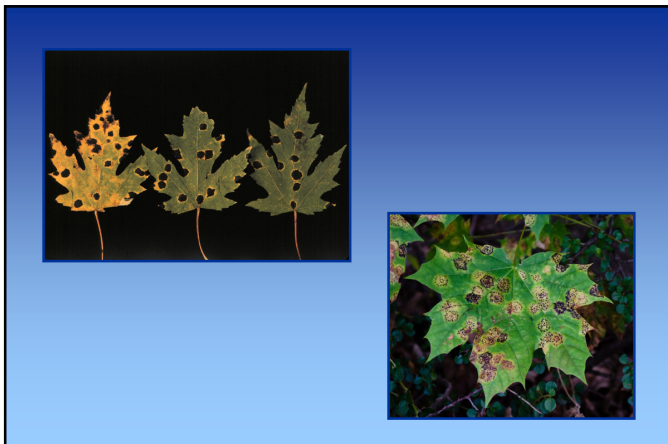
- **Control**
 - Buy plants from a reputable source
 - DO NOT buy symptomatic plants
 - Pretest plants for viruses
 - Keep weeds under control
 - Control vectors (insects)
 - DO NOT smoke around your plants
 - Remove and destroy infected plants

2014 Plant Disease Forecast Virus Diseases

- **Control**
 - Wash hands routinely
 - Disinfect contaminated materials
 - Sodium dodecyl sulfate (sodium lauryl sulfate) + Alconox® (1% + 1%)
 - Trisodium phosphate
 - Alcohol dip followed by flaming

2014 Plant Disease Forecast Tar Spot

- **Causes**
 - Rhytisma americanum
 - Rhytisma acerinum
- **Hosts:** Maples
- **Environment trigger:** Wet weather



2014 Plant Disease Forecast Tar Spot

- **Control**
 - DO NOT panic
 - Remove diseased leaves
 - Use fungicides to prevent infections
 - Copper-containing fungicides
 - 3 applications at bud break, 1/2 expansion of leaves, full leaf expansion

2014 Plant Disease Forecast *Verticillium Wilt*

- **Causes**
 - *Verticillium dahliae*
 - *Verticillium albo-atrum*
- **Hosts**
 - Many woody ornamentals
 - Many herbaceous plants
 - Many vegetables
- **Environmental trigger: Wet weather**



2014 Plant Disease Forecast *Verticillium Wilt*

- **Control**
 - Use appropriate plants in suspect areas
 - Pine, juniper, fir, spruce
 - Beech, birch, ginkgo, hackberry, hawthorn, hickory, honey locust, mountain ash, white oak, bur oak, poplar, serviceberry, sycamore, willow
 - Pretest soils/mulches/composts
 - Control broad-leaf weeds
 - Avoid municipal mulches

2014 Plant Disease Forecast *Verticillium Wilt*

- **Control**
 - Prevent plant stress
 - Prune diseased (wilted) areas
 - Disinfest tools after use
 - Practice good general plant maintenance
 - Remove diseased plants
 - Destroy infected materials
 - Burn
 - Composting (?)

2014 Plant Disease Forecast *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