Ten Diseases to Watch for in 2014

**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

- **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
Ten Diseases to Watch for in 2014
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

Ten Diseases to Watch for in 2014
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

Ten Diseases to Watch for in 2014
Powdery Mildews

- 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

Ten Diseases to Watch for in 2014
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
Ten Diseases to Watch for in 2014

Impatiens Downy Mildew

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

Ten Diseases to Watch for in 2014

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

Ten Diseases to Watch for in 2014

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 (?)
Ten Diseases to Watch for in 2014

**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

- **Infected tomatoes, fruits, tubers**
- **Volunteer tomato and potato plants**
- **Weed hosts**

Ten Diseases to Watch for in 2014

**Tomato Leaf Blights**

- **Control (late blight)**
  - Grow resistant tomato varieties

Ten Diseases to Watch for in 2014

**Tomato Leaf Blights**

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

Ten Diseases to Watch for in 2014

**Tobacco Rattle**

- **Cause:** Tobacco Rattle Virus
- **Hosts**
  - Herbaceous ornamentals
    - Astilbe, bleeding heart, columbine, coral bells, daffodils, epimedium, gladiolus, hyacinth, hosta, marigold, peony, tulip, vinca
  - Vegetables
    - Beans, beet, pepper, potato, spinach

Ten Diseases to Watch for in 2014

**Tobacco Rattle**

- **Environmental trigger:** None
- **Transmission**
  - Stubby-root nematodes
    - Trichodorus spp.
    - Paratrichodorus spp.
  - Mechanical inoculation
  - Grafting
  - Seed

Automated image description:

- Description: The image contains text about ten diseases to watch for in 2014, specifically tomato leaf blights and tobacco rattle. The text includes control measures for late blight, resistant varieties for tomatoes, and methods for preventing and controlling tobacco rattle. Images of infected plants and nematodes are also present.

- Relevant information: The diseases discussed are important for gardeners and farmers to monitor to prevent crop damage.

- Source: The text is attributed to Anette Phibbs, WI DATCP.
Ten Diseases to Watch for in 2014

**Tobacco Rattle**

- **Control**
  - DO NOT buy symptomatic plants
  - Grow non-susceptible plants
    - Annual phlox, carnation, devil's trumpet (downy thorn-apple), sweet William, zinnia, zombie cucumber
  - Remove and destroy infected plants

- **Control**
  - Disinfect contaminated materials
    - Sodium dodecyl sulfate (sodium lauryl sulfate) + Alconox® (1% + 1%)
    - Trisodium phosphate
    - Alcohol dip followed by flaming
  - DO NOT attempt to control stubby-root nematodes

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**Aster Yellows**

- **Pathogen:** Aster yellows phytoplasma
- **Hosts**
  - Many plants in the Asteraceae (aster family)
  - Many plants in many other plant families
- **Environmental trigger:** None
- **Transmission:** Aster leafhopper

- **Control**
  - Remove and destroy infected plants
  - Control leafhopper vector (?)
Ten Diseases to Watch for in 2014

**Foliar Nematode**

- **Cause:** *Aphelenchoides* spp.
- **Hosts**
  - Many types of herbaceous plants
  - Houseplants
    - African violets, ferns, chrysanthemum
  - Landscape plants
    - Hosta, coral bells, miterwort, begonia

**Control**
- Inspect plants prior to purchase for symptoms
- Avoid overhead irrigation
- Remove symptomatic plants and infested plant debris
  - Burn (where allowed)
  - Deep bury (landfill)
  - Hot compost

**Tar Spot**

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

**Control**
- Disinfect contaminated materials
  - 10% bleach
  - 70% alcohol
  - Commercial disinfectants
- Hot water treatments (10 minutes at 125°F)
Ten Diseases to Watch for in 2014

**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

**Verticillium Wilt**

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

**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

**Wood Chips as an Inoculum Source**

- **Amur maple**
  - 30.0%/25.0% (Tried)
  - 0.0%/0.0% (Non-Tried)
- **Green Ash**
  - 23.7%/10.5% (Tried)
  - 0.0%/0.0% (Non-Tried)
- **Redbud**
  - 10.7%/13.3% (Tried)
  - 0.0%/0.0% (Non-Tried)
Ten Diseases to Watch for in 2014

Verticillium Wilt

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

Oak Wilt

- Cause
  - Ceratocystis fagacearum
  - Chalara sp.

- Hosts
  - Oaks
  - Chinese chestnut

- Environmental trigger: Wet weather

Ten Diseases to Watch for in 2014

Oak Wilt

- Transmission
  - Oak bark beetles
    - Pseudopityophthorus ninutissimus
    - Pseudopityophthorus pruinosis
  - Sap beetles
    - Carpophilus spp.
    - Colopterus spp.
    - Cryptarcha spp.
    - Epuraea spp.
    - Clischrochilus spp.
  - Root grafts

- Control
  - Avoid pruning or wounding oaks when they are physiologically active
  - Paint wounds as needed
  - Remove diseased (and healthy) oaks
  - Disrupt root grafts
  - Use oak wood appropriately
Ten Diseases to Watch for in 2014

**Oak Wilt**

- **Control**
  - Use fungicide injections
    - Propiconazole
    - Prophylactic or therapeutic
    - Every 12-24 months

**“Cedar-Apple” Rusts**

- **Cause:** Gymnosporangium spp.
- **Hosts**
  - Junipers
  - Rosaceous plants: apple, crabapple, hawthorn, quince, pear!
- **Environmental trigger:** Wet weather

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**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