

Portage County Seminar

2016 Plant Disease Outlook

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2016 Plant Disease Outlook
Tomato Leaf Blights

- **Causes**
 - *Septoria lycopersici* (Septoria leaf spot)
 - *Alternaria solani* (early blight)
 - *Phytophthora infestans* (late blight)
- **Hosts**
 - Tomato
 - Potato (early blight, late blight)
- **Favorable environment: Cool, wet weather**



2016 Plant Disease Outlook
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
 - Mulch around the base of plants
 - DO NOT over-mulch

2016 Plant Disease Outlook
Tomato Leaf Blights

- **Control (early blight, Septoria leaf spot)**
 - DO NOT overhead water
 - Remove infected leaf tissue (?)
 - Use fungicides to prevent infections
 - Chlorothalonil, copper, neem oil
 - Alternate active ingredients (FRAC codes)
 - Apply at 7-14 days intervals

2016 Plant Disease Outlook 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

2016 Plant Disease Outlook Tomato Leaf Blights

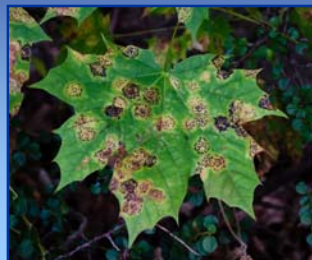
- **Control (late blight)**
 - Grow resistant tomato varieties
 - **Excellent:** 'Black Plum', 'Defiant', 'Iron Lady', 'Matt's Wild Cherry', 'Mountain Magic', 'Mountain Merit', 'Plum Regal', 'Yellow Currant', 'Yellow Pear'
 - **Good:** 'Aunt Ginny's Purple', 'Big Rainbow', 'Red Currant', 'Tigerella'
 - **Moderate:** 'Aunt Ruby's German Green', 'Black Krim', 'Juliet', 'Pruden's Purple', 'Red Pearl', 'Slava', 'Stupice', 'Sun Sugar', 'Wapsipinicon', 'Wisconsin 55'

2016 Plant Disease Outlook Tomato Leaf Blights

- **Control (late blight)**
 - Use fungicides to prevent infections
 - Chlorothalonil, copper
 - Alternate active ingredients (FRAC codes)
 - Apply at 7-14 day intervals

2016 Plant Disease Outlook Tar Spot

- **Causes:** [Rhytisma acerinum](#)
[Rhytisma punctatum](#)
- **Hosts:** Maples
- **Favorable Environment:** Cool, wet weather



2016 Plant Disease Outlook Tar Spot

- **Control**
 - **DO NOT** panic
 - Remove diseased leaves
 - Burn
 - Bury
 - Hot compost
 - Use fungicides to prevent infections
 - Copper-containing fungicides
 - At bud break, 1/2 and full leaf expansion

2016 Plant Disease Outlook Powdery Mildews

- **Cause**

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

- **Hosts**

- Virtually everything
- Not conifers

- **Favorable environment: High humidity**



2016 Plant Disease Outlook 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

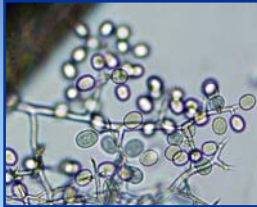
2016 Plant Disease Outlook Powdery Mildews

- **Control**

- Use fungicides to prevent infections
 - Dinocap, dithiocarbamates, myclobutanil, triadimefon, triforine, sulfur or thiophanate-methyl
 - 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

2016 Plant Disease Outlook 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)
- Favorable environment: Wet weather



2016 Plant Disease Outlook 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

2016 Plant Disease Outlook Impatiens Downy Mildew

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

2016 Plant Disease Outlook 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

2016 Plant Disease Outlook Tobacco Rattle

- **Cause: Tobacco Rattle Virus**
- **Hosts**
 - **Ornamentals**
 - Astilbe, bleeding heart, columbine, coral bells, daffodils, epimedium, gladiolus, hyacinth, hosta, marigold, peony, tulip, vinca
 - **Vegetables**
 - Beans, beet, pepper, POTATO, spinach
- **Favorable environment: None**

2016 Plant Disease Outlook Tobacco Rattle

- **Transmission**
 - **Stubby-root nematodes**
 - *Trichodorus* spp.
 - *Paratrichodorus* spp.
 - **Mechanical inoculation**
 - **Grafting**
 - **Seed**



2016 Plant Disease Outlook 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**
 - Burn (where allowed)
 - Deep bury
 - Hot compost

2016 Plant Disease Outlook Tobacco Rattle

- **Control**
 - **Decontaminate contaminated materials**
 - 1% sodium dodecyl sulfate (sodium lauryl sulfate) + 1% Alconox® (2½ Tbsp + 2¾ Tbsp/gal)
 - 20% low fat dry milk (Carnation®) + 0.1% polysorbate 20 (9⅞ cups + ¼ tsp/gal)
 - Trisodium phosphate (14 dry oz/gal)
 - Alcohol dip followed by flaming
 - **Control stubby-root nematode = not practical**

2016 Plant Disease Outlook Aster Yellows

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



2016 Plant Disease Outlook Aster Yellows

- **Control**
 - Remove and destroy infected plants
 - Burn (where allowed)
 - Deep bury
 - Hot compost
 - Control leafhopper vector (?)

2016 Plant Disease Outlook Southern Blight

- **Pathogen:** *Sclerotium rolfsii*
- **Hosts**
 - Many other herbaceous annuals and perennials
 - Some woody ornamentals
 - Hosta
 - Bedding plants
- **Favorable environment:** None



2016 Plant Disease Outlook Southern Blight

- **Control**
 - Avoid contaminated plants and mulch
 - Remove infected plants
 - Amend soil with organic matter (?)
 - Use fungicides for control
 - azoxystrobin, flutolanil, flutolanil + thiophanate-methyl, PCNB, tebuconazole, triadimefon
 - Alternate active ingredients (FRAC codes)
 - 14 – 28 day intervals
 - Pray for a really, really, REALLY cold winter

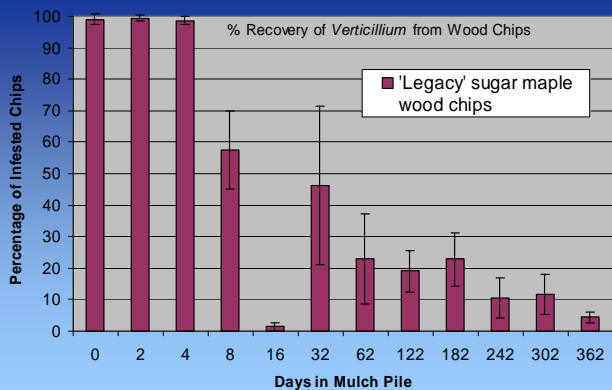
2016 Plant Disease Outlook Verticillium Wilt

- **Causes:** Verticillium dahliae
Other Verticillium spp.
- **Hosts**
 - Many woody ornamentals
 - Common: Maple, ash, redbud, smokebush
 - “New”: Seven son flower, wafer-ash, buttonbush, Eastern leatherwood
 - Many herbaceous plants and vegetables
- **Favorable environment:** Cool, wet weather



2016 Plant Disease Outlook Verticillium Wilt

- **Control**
 - Avoid Verticillium-infested areas
 - Pretest soils/mulches/composts for the presence of Verticillium
 - Fumigate heavily infested soils
 - Keep broad-leaf weeds under control
 - Avoid municipal mulches



- **Wood Chips as an Inoculum Source**
 - **Amur maple**
 - 30.0%/25.0% (Trted)
 - 0.0%/0.0% (Non-Trted)
 - **Green Ash**
 - 23.7%/10.5% (Trted)
 - 0.0%/0.0% (Non-Trted)
 - **Redbud**
 - 10.7%/13.3% (Trted)
 - 0.0%/0.0% (Non-Trted)

2016 Plant Disease Outlook Verticillium Wilt

- **Control**
 - Use “resistant” plants
 - **CONIFERS:** Pines, spruces, firs, junipers
 - **DECIDUOUS TREES/SHRUBS:** Beech, birch, ginkgo, hackberry, hawthorn, hickory, honey locust, mountain ash, white oak, bur oak, poplar, serviceberry, sycamore, willow
 - Prevent plant stress
 - Prune diseased (wilted) areas

2016 Plant Disease Outlook Verticillium Wilt

- **Control**
 - Decontaminate pruning tools
 - 70% alcohol
 - 10% bleach
 - Make infected trees comfortable until they die
 - Remove and destroy diseased materials
 - Burn (where allowed)
 - Hot compost?

2016 Plant Disease Outlook Boxwood (Box) Blight

- **Cause**
 - *Calonectria pseudonaviculata*
 - *Cylindrocladium pseudonaviculatum* (*Cylindrocladium buxicola*)
- **Hosts**
 - Boxwood
 - Pachysandra
- **Favorable Environment:** Cool, wet weather



2016 Plant Disease Outlook Boxwood (Box) Blight

- **Control**
 - Buy locally produced boxwood
 - Grow resistant varieties
 - ‘Green Mound’
 - ‘Glencoe’ (Chicagoland Green®)
 - Avoid symptomatic plants
 - Keep new plants isolated
 - Physically separate boxwood plantings
 - Space plants far apart

2016 Plant Disease Outlook Boxwood (Box) Blight

- **Control**
 - DO NOT overhead water
 - Prune out diseased branches
 - Disinfest pruning tools and other items
 - 70% alcohol
 - 10% bleach
 - Remove and destroy infected plants
 - Burn (where allowed)
 - Deep bury

2016 Plant Disease Outlook Boxwood (Box) Blight

- **Control**
 - Use fungicides treatments
 - Azoxystrobin, chlorothalonil, fludioxonil, iprodione, kresoxim-methyl, mancozeb, metconazole, propiconazole, pyraclostrobin, tebuconazole, thiophanate-methyl, triflumidazole
 - 7 day application intervals
 - Alternate active ingredients (FRAC codes)
 - Contact the PDDC if you believe you have found boxwood (box) blight!

2016 Plant Disease Outlook Thousand Cankers Disease

- **Cause:** Geosmithia morbida
- **Hosts**
 - Black walnut
 - Other walnuts
- **Favorable Environment:** None
- **Transmission**
 - Walnut twig beetle (Pityophthorus juglandis)



2016 Plant Disease Outlook Thousand Cankers Disease

- **Control**
 - DO NOT transport walnut wood/products from areas known to have the disease
 - Remove and destroy (burn) affected trees (assisted by WI DATCP and USDA APHIS)
 - No effective fungicide strategies known
 - No effective insecticide strategies known
 - Contact the PDDC if you believe you have found this disease!

2016 Plant Disease Outlook How to Contact the PDDC

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