Identification of Insects and Diseases in Christmas Trees

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• Needle Discoloration or Distortion
• Needle Feeders
• Shoot / Branch Injury
• Stem / Root Injury
Needle Discoloration: **Ozone Damage**
Needle Discoloration: **Needle Rust**

- Balsam and Fraser Fir, Red and Scotch pine
  - Current year needles
    - Drop by end of summer
    - Check July-August
  - Manage alternate hosts (fir- ferns)
  - Alternate hosts (pine – goldenrod & asters)
Needle Distortion: **Balsam Twig Aphid**

- **Balsam & Fraser fir (some spruce and pines)**
  - Targets developing needles
    - Causes curling
  - Needles uncurl as they mature
- **April-early May** – check the underside of last year’s needles 2” from bud
- **May – June** – move to shoots 1-2” in length – needle curl begins
- **Systemic Insecticide spray** if 30% of branches have aphids
- Once curling begins **Spray treatments not effective**
Needle Discoloration: **Brown Spot Needle Blight**
Needle Discoloration: **Brown Spot Needle Blight**

- **Scotch Pine**
  - Look for red/brown spots with yellow edges
  - Black fruiting bodies

Cut small pockets of infected trees – burn

Treat trees with fungicide within 30’ 2-3 applications needed

Shear dry foliage only

Sanitize shearing tools
Needle Discoloration: Dothistroma Needle Blight

- Austrian Pine
  - Tan spots
  - Needles brown from the tip to the spots

Cut small pockets of infected trees – burn

Treat trees with fungicide within 30’ 2-3 applications needed

Shear dry foliage only
Sanitize shearing tools
Needle Discoloration: Drought

- Air pollution, root rot, cankers, mites, herbicides are all look-a-likes

weed control and watering if severe
Needle Discoloration: Frost Injury
Needle Discoloration: Eriophyid Mites

- Scotch,
- Austrian,
- Red, White-
- pine

- Blotchy needles
- Look for mites between needles

Mite populations expand after insecticide treatments kill off beneficials

Mid May – June - Full tree drench with Miticide, treat again 10-14 days later
Needle Discoloration: Lirula Needlecast

- Balsam, Fraser, and White Fir
- Yellowing of needles
- Fruiting bodies on the upper side of the needles
- June - July blister ridges form on the underside of second and third year needles
Needle Discoloration: Pine Needle Scale

- All Pines, Spruce & Douglas Fir
- Look for white flecks

Dormant oil treatments

Insecticides when Lilacs are in full bloom – 1st generation crawlers
Late July / early August

Insecticides for 2nd generation
Needle Discoloration: Rhizosphaera Needlecast
Needle Discoloration: **Rhizosphaera Needlecast**

- **Spruce** – mainly Colorado
- Fruiting bodies on dead and dying needles

Treat trees with fungicide within 30’ 2-3 applications needed, Shear dry foliage, Sanitize tools
Needle Discoloration: Spruce Needle Rust

- Black, white, blue, and Norway Spruce
- Yellow current year needles
- White/yellow blisters on underside of needles
Needle Discoloration: Spruce Spider Mites

- All tree types
- Yellow mottling on needles
- Fine webbing

-June – early July
-spray miticide at 2 week intervals
-dormant oil in early spring
Needle Feeders:
Needle Feeders: Bagworms

- Spruce, fir, cedar, white pine
- Missing needles at top
- Brown silk/needle bags 1.5-2” long

Monitor for crawlers In May spray Bt for light – moderate infestation
If severe spray insecticide
Hand pick bags June - July
Needle Feeders: European Pine Sawfly

- Scotch, red, & Austrian
- May – June damage occurs
- Missing foliage

Insecticide – pyrethroids or carbaryl
Needle Feeders: Introduced Pine Sawfly

- White pine, scotch, red
- June – September
- Missing foliage

Insecticide – pyrethroids or carbaryl
Needle Feeders: Pine Tube Moth

- White Pine
- Clusters of needles bound with fine silk

1\textsuperscript{st} generation – no treatment
2\textsuperscript{nd} generation – treat with insecticide in mid May- late July
Needle Feeders: Pine Tussock Moth

- White & red pine, Fraser & Balsam
- Defoliation in May – June
- WI & MN
- Bt or Insecticide in late April - May
Needle Feeders: Spruce Budworm

- Spruce, Firs and Pines growing nearby
- May – June caterpillars defoliate
- Mid May treat with Bt or insecticide -treat 7-10 days later
Shoot / Branch Injury:
Shoot / Branch Injury: Adana Tip Moth

- Scotch & Red
- Dead / dying/stunted shoots
- Small hole at the base of dead stem
- Overwinter in cocoon at root collar

Shear and destroy leaders/shoots
Spray in April to kill emerging larvae
Shoot / Branch Injury: *Cytospora Canker*
Shoot / Branch Injury: Diplodia Tip Blight

- Austrian Pine
- Cones overwinter fungal pathogen
- Copper based fungicide
Shoot / Branch Injury: Pine Shoot Borer

- Pines, white spruce, douglas fir
- Shoots “wilt” and yellow
Terminal leaders break off
Oval exit hole at base were broken
Insecticide treatment in May to kill larvae
Treatment after wilting is not effective
Shoot / Branch Injury: Pine Blister Rust

- White Pine
- Brown bark with yellow borders (1\textsuperscript{st} year infection)

Prune out cankered portion
Before stem is infected, destroy
Immediately

Treat alternate host (Ribes spp.)
Stem / Root Injury:
Stem / Root Injury: Meadow Vole / Gopher

- All trees
- Pine root collar weevil, drought, and Armillaria root disease look similar
Stem / Root Injury: Phytophthora Root Rot

- Fir, Spruce, and Pine
- Red/brown trees
- Wilting new growth / discolored roots
- Do not plant on poorly drained soils
Stem / Root Injury: Zimmerman Pine Moth

- Pines – especially Scotch
- Pitch masses at branch whorls
- Broken stems if heavily infested
- Remove and destroy trees by mid June to stop adults
Needle Feeders: Pine Chafer
Needle Feeders: Pine Needle Midge