

# Minor Insect Pests of Trees

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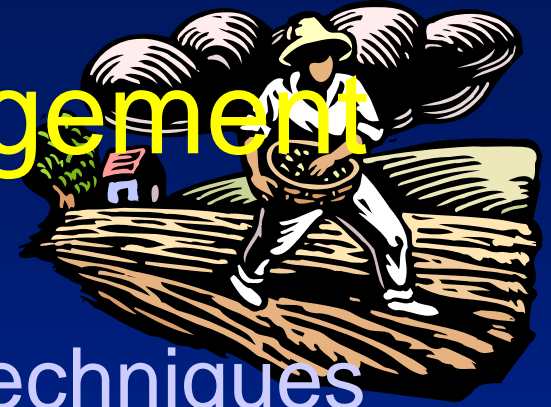
2004 Professional Tree Care Workshops



# Topics

- Introduction – IPM strategies
- Beneficial arthropods - Conservation
- Aphids
- Scales
- Spider mites
- Cooley spruce gall adelgid
- Root weevils
- Leaf beetles
- Earwigs
- Snails/Slugs
- Boxelder bug

# Integrated Pest Management IPM



The practice of using multiple techniques to manage pests (e.g., cultural, mechanical, biological and chemical controls) while minimizing negative impacts to the environment.

Use of pest controls are based on a “real need” (thresholds)

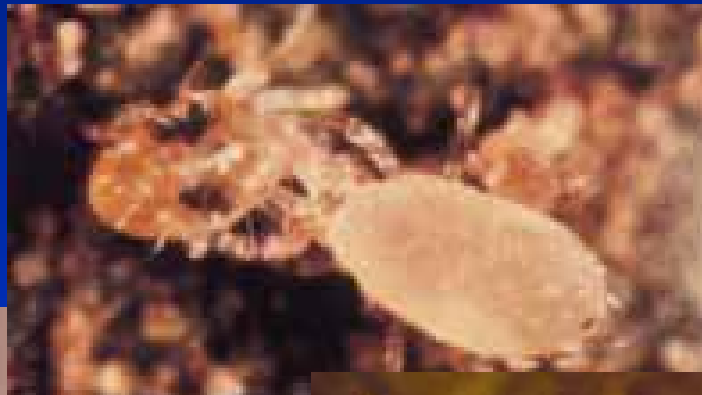
Economically viable



# Management Strategies for Minor Insect Pests of Trees

- Wait and See
  - Most are secondary pests and often do not increase to problem levels
    - Sporadic pests or populations too low to cause injury
  - Plants can tolerate injury
    - Foliar or flower feeding, bud or twig feeding
  - Cultural practices to keep plants healthy – resist secondary pests
- Preventive tactics for annual/frequent pests
  - Dormant oil sprays

# Most insects are beneficial or have no direct impact



# Beneficial Insects & Mites



Parasitoids



Predaceous Bugs



Lacewing



Common Aphid Predators



Lady Beetle



Predaceous Mites

# Conservation of Natural Enemies

- Provide attractive resources (food, shelter, diversity of conditions)
  - Many herbs (basil, coriander, thyme, dill, lavender, fennel, chamomile, etc.)
  - Many native and wild flowers (yarrow, columbine, mallow, penstemon, goldenrod, stonecrop, speedwell, etc.)
- Avoid harmful practices (toxic insecticides, “clean farming”)

# Aphids



- Suck fluids from leaves and stems; curl leaves; produce sticky honeydew; black sooty mold
- Only control if honeydew is a nuisance problem or distortion of leaves is severe and aphid numbers are very high
- Over winter as eggs on limbs; aphid nymphs hatch in the spring at bud break



# Aphids



- Delayed Dormant Spray: Dormant oil + Malathion, Diazinon, or Thiodan (at bud break)
- Biological control: lady beetles, lacewings, syrphid flies, parasitic wasps
- Spring and Summer control: Stiff spray of water, insecticidal soap, horticultural oil, neem oil, malathion, systemics: Orthene, Merit
- Aphids are prone to develop resistance to insecticides – rotate insecticide types

# Scale Insects



- Multiple years of scale feeding can kill limbs; cause dieback
- Delayed Dormant Control is most effective: Dormant oil + Malathion, Diazinon, or Thiodan (at first bud break)
- Use sticky tape in late spring to time a spray for “crawlers”
- Hort. oil, insect. soap, malathion, neem, Orthene, Merit



# Spider Mites



- Very small arthropods; infested plants appear “dirty”; produce webbing, suck sap (remove chlorophyll); leaf speckling
- When severe, cause bronzing or silvering of leaves; populations build quickly in hot weather



# Spider Mites



- Controls: pressurized stream of water, horticultural oils, insecticidal soap
- Don't recommend Kelthane or Vendex unless a rescue treatment
- Warning!! Use of pyrethroids for other pests can cause outbreaks of mites
- Biological control: Predaceous mites



# Gall Former



Cooley Spruce  
Gall Adelgid



# Cooley Spruce Gall Adelgid



- Form galls on new growth of spruce; also attack Douglas fir – cause needle swelling, necrosis and shedding
- Adults lay eggs on new “candle” growth in spring; feeding young forms galls
- Insecticide treatment at egg hatch: Merit, Lorsban, Thiodan
- Avoid planting spruce and Doug fir together
- Prune off green/purple galls



# Strawberry Root Weevil



- Common hosts: lilac, peony, dogwood, yew, privet, cotoneaster, arbovitae, others
- Adults chew irregular notches in leaf edges – target with foliar insecticide (Orthene, Merit, Sevin, Diazinon) – in spring
- Larvae feed on roots – target with soil insecticide (Diazinon, Merit) or insect-feeding nematodes



# Recent Observations



Leaf-notching / Root-feeding  
Weevils

*Otiorhynchus meridionalis*

Lilac weevil  
Strawberry root weevil

Pest of ornamentals  
Insecticide application in  
May when notching first  
appears



# Leaf Beetles



- Elm leaf beetle, Cottonwood leaf beetle
- Larvae skeletonize leaves; adults chew holes
- Over winter as adults in protected places
- Eggs laid on undersides of leaves in spring



# Leaf Beetles



- Biological Control: wasps, flies
- *Bacillus thuringiensis* var. *tenebrionus* (Btt, Novodor, M-one) – must be consumed by larvae
- Trunk banding with Sevin
- Insecticidal soap, Neem
- Orthene, Talstar, Tempo, Merit

# European Earwig



- Feed on young, tender plants; chew holes in flower petals, fruits; nuisance pest
- Adults are also predators; nocturnal



# European Earwig



- Cultural controls: avoid overuse of mulch and damp debris where they hide during the day; place and remove rolled newspaper; attractant traps: tuna can with bacon grease
- Chemicals: pyrethroids (permethrin); target young in spring



# Snails & Slugs



- Eat large irregular holes in leaves & fruit
- Susceptible to dry conditions
- Cultural controls: do not over irrigate, avoid excessive mulch & debris which provide moist habitats
- Chemicals: baits (iron phosphate), home made traps (low sided dishes with water + yeast)
- Copper bands repel them



# Box Elder Bug



- Nuisance pest primarily!
- Exclusion of insects from buildings is most effective management
- Removal of female boxelder trees can be helpful (trees with winged seeds)
- Targeted removal of adults from problem areas (hard spray of water, mechanical removal, sweep, vacuum)

# Contact Information

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