

Rose Pests

Frank A. Hale, Ph.D.
Professor
Entomology and Plant Pathology

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Leafcutter Bees



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Images courtesy of Carol Reese, UT Extension

Leafcutter bees (*Osmia* spp.) – important native pollinators



5393134

Image courtesy of Scott Farnous, D.D., Bugwood.org

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Leafcutter Bee Damage

- The bees excavate pith from pruned canes with ¼ inch diameter pith area to a depth of a few inches to almost a foot
- Circles or ovals of leaf tissue are used to line the hollowed out cane and produce a row of stacked individual cells
- A round leaf section is used to form a cap at the end of each cell while oval sections form the sides
- An egg is laid in each cell which is then provisioned with food consisting of pollen and nectar

Courtesy of David Shelton, 2011. The rose ridge (and other common insecticide rose pests). The Ohio State University Extension.

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Leafcutter Bees



Images courtesy of David Shelton, 2011. What's Bug in Your Roses? The Ohio State University Extension

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Leafcutter Bee Larval Cells



UGA1476006

Leafcutter bee (*Megachile* spp.) larval cells in trap nest, Howard Enright Evans, Colorado State University, Bugwood.org

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Leafcutter Bee Controls

- Hang bundles of bamboo from ¼ to 3/8" pith area to provide nesting sites for leafcutter bees
- They still will cut leaves but they might not do as much damage to pruned canes
- Drip wax over cut end or shove wooden toothpicks or match sticks into the pith to discourage tunneling

Courtesy of David Shetlar. 2011. The rose midge (and other common insect/mite rose pests). The Ohio State University Extension

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Leafcutter Bee Damage



Image courtesy of A. Windham, UT Extension

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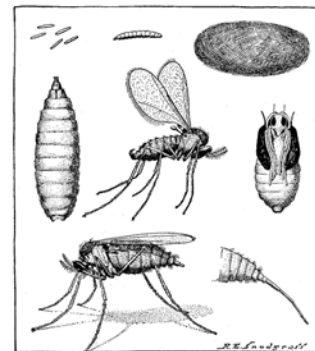
Leafcutter Bee Damage



Tunneled twigs can die-back and be more susceptible to winter damage

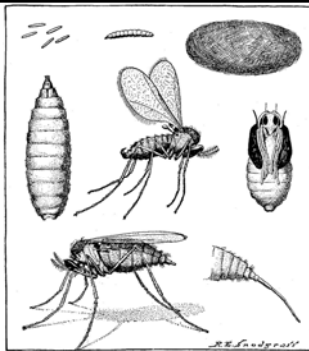
Image courtesy of A. Windham, UT Extension

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**Rose midge life stages,
USDA, 1909**

Slide courtesy of David Shetlar. 2015. What's Bug'in Your Roses? The Ohio State University Extension



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Rose Midge

- An introduced pest first seen on greenhouse roses in New Jersey in 1884
- In 1915, first seen as a pest of garden roses
- The larvae feed with rasping mouthparts at the base of new leaf shoots and flower buds
- The damage can be mistaken for a disease (Botrytis fungal blight) since the damaged shoots initially curl and eventually if girdled can wilt and drop off

Courtesy of David Shetlar. 2011. The rose midge (and other common insect/mite rose pests). The Ohio State University Extension

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Image courtesy of David Sheelar. 2015. What's Bug In Your Roses? The Ohio State University Extension

Rose Midge Larva and Damage



Image courtesy of David Sheelar. 2015. What's Bug In Your Roses? The Ohio State University Extension

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Rose Midge Chemical Control

- Imidacloprid (Merit, Bayer Advanced 12 Month Tree and Shrub Insect Control and other brand names) – drench bare soil with mulch pulled back when 1.5 to 2 inches of green tissue in on plant in early spring
- Dinotefuran (Safari and other brand names) – drench bare soil every 30-40 days starting in early spring when 2 inches of green tissue seen.
- Apply protective foliar sprays of azadiractin (Azatin O and other brand names) or spinosad (Conserve SC and other brand names) on a regular basis to protect new flushes of growth

Courtesy of David Sheelar. 2011. The rose midge (and other common insect/mite rose pests). The Ohio State University Extension

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Rose Midge Damage



Images of rose midge damage courtesy of Bruce Watt, University of Maine, Bugwood.org

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Rose Midge Alternative Controls

- Remove buds with larvae at first sign of damage
- Since larvae drop to ground to pupate, place a plastic ground cover under rose plants to block larvae from reaching the soil to spin cocoons and pupate
- The exposed larvae soon desiccate and die on the plastic

Courtesy of David Sheelar. 2011. The rose midge (and other common insect/mite rose pests). The Ohio State University Extension

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Twospotted Spider Mite



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Twospotted Spider Mite

Top of leaf

Underside of leaf

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Spider Mites (Miticides for the Landscape)

- Avid
- Horticultural oil
- Insecticidal soap
- Hexygon
- TetraSan
- Floramite
- Forbid
- Shuttle 0

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Rose Sawflies (Roseslugs)

- Some sawfly larvae have a slug-like appearance, while others are covered in fine setae (hairs)

Bristly Roseslug

Roseslug

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Roseslug larva and damage

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Bristly roseslug

- Larvae feed on underside of leaves
- Can have several generations per year and be mistaken for Japanese beetle damage in mid-season

Image courtesy of David Shelar, 2015. What's Bug'In Your Roses? The Ohio State University Extension

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Roseslug, mature larva

Roseslug adult

- Larvae feed on top of leaf
- One generation per year

Image courtesy of David Shelar, 2015. What's Bug'In Your Roses? The Ohio State University Extension

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Sawfly Control

- Control with Conserve SC, Acelepryn, Lepitect, Orthene T & O WSP, Sevin SL, Meridian, Merit, Azatin O, and pyrethroid insecticides labeled for use on ornamental plants in the landscape
- Horticultural oil and insecticide soap can be effective on larvae if sprayed directly
- Note that Bt insecticides (Dipel etc.) do not work on sawflies, just lepidopteran caterpillars



Sawfly on shingle oak

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Thrips in Greenhouses & Urban Gardens

- Flower Thrips (*Frankliniella tritici*)
- Western Flower Thrips (*Frankliniella occidentalis*)
- Greenhouse Thrips (*Heliethrips haemorrhoidalis*)
- Banded Greenhouse Thrips (*Hercinothrips femoralis*)
- Chilli Thrips (*Scirtothrips dorsalis*)

Image courtesy of David Shetlar. 2015. What's Bug'n Your Roses? The Ohio State University Extension

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Adult Thrips on Flower Petal



Image courtesy of David Shetlar. 2015. What's Bug'n Your Roses? The Ohio State University Extension

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Thrips feed by piercing plant cells to remove their contents. This causes "blanching" of the feeding area. Thrips also produce small "tar spot" type of excrement.

Adult thrips have bladlike wings with a long hair fringe

Slide courtesy of David Shetlar. 2015. What's Bug'n Your Roses? The Ohio State University Extension

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Western Flower Thrips



Egg



First instar nymph



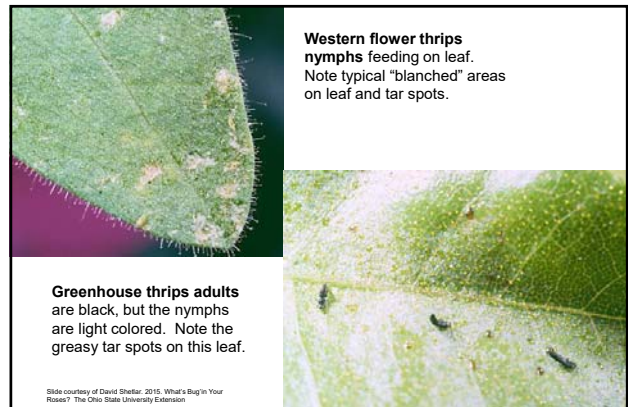
Adult



Second instar nymph

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Western flower thrips nymphs feeding on leaf. Note typical "blanched" areas on leaf and tar spots.

Greenhouse thrips adults are black, but the nymphs are light colored. Note the greasy tar spots on this leaf.

Slide courtesy of David Shetlar. 2015. What's Bug'n Your Roses? The Ohio State University Extension

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Thrips Damage on Rose Bud



Image courtesy of A. Windham, UT Extension

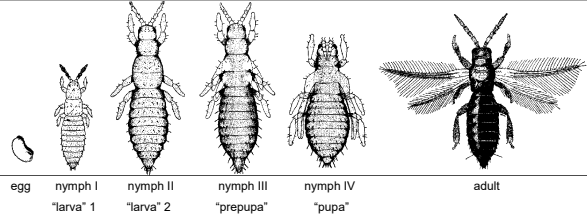
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Thrips Life Cycles

(using gladiolus thrips)

Entomologists that work with thrips often call the first two nymphal instars "larvae," the non-active third instar nymph a "prepupa," and the fourth instar nymph a "pupa."



Slide courtesy of David Shetlar, 2015, What's Bug'in Your Roses? The Ohio State University Extension

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Effective Products 7 Different Modes of Action

Acephate	Foliar	N, G, L	
Acetamiprid	Foliar	N, G, L	
Clothianidin	Foliar	N, G, L	
Dinotefuran	Foliar	N, G, L	
Imidacloprid	Foliar	N, G, L	
Thiamethoxam	Foliar	N, G, L	
Spinosad	Foliar	N, G, L	
Abamectin	Foliar	N, G, L	
Fonicamid	Foliar	G	
Chlorfenapyr	Foliar	G	
Pyridalyl	Foliar	G	
			N=Nursery G=Greenhouse L=Landscape

Slide courtesy of David Shetlar, 2015, What's Bug'in Your Roses? The Ohio State University Extension

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Flecking (spots)
caused by rose
leafhopper feeding



Rose leafhoppers are
small, wedge-shaped
insects that run sideways
and jump if disturbed

Slide courtesy of David Shetlar, 2015, What's Bug'in Your Roses? The Ohio State University Extension

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Leafhopper Controls

- Prune canes in dormant plants before eggs inserted into canes in fall hatch, keep out brambles that serve as an alternate host
- Preventive Insecticides (apply early)
 - Imidacloprid (Merit and other brand names)
 - Dinotefuran (Safari and other brand names)
- Curative Insecticides (apply at first sign of leafhoppers to underside of leaves)
 - Sevin
 - Bifenthrin (Talstar and other brand names)
 - Azadirachtin (Azatin O and other trade names)
 - Spinosad (Conserve SC and other brand names)

Slide courtesy of David Shetlar, 2015, What's Bug'in Your Roses? The Ohio State University Extension

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Japanese Beetle



Image courtesy of A. Windham, UT Extension

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Japanese Beetles on Rose



Image courtesy of A. Windham, UT Extension

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Japanese Beetle Controls

- **Traps – Not Recommended**
- **Preventive Insecticides**
 - Imidacloprid
 - Dinotefuran
 - Acetamiprid
- **Curative Insecticides**
 - Sevin
 - Bifenthrin and other pyrethroids
 - Azadirachtin (Azatin O and other brand names) – apply every 10 days

Slide courtesy of David Shattar, 2015, What's Bug'in Your Roses? The Ohio State University Extension

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Safety and Use of Neonicotinoid Insecticides in the Landscape

If flowering weeds such as dandelions and white clover are present:

- Mow the turf immediately before spraying any insecticide. This will remove 90% or more of the flowers and reduce pollinator foraging.
- Mow frequently to remove blooms when neonicotinoids are used
- Remove weeds from turfgrass with herbicide

Information courtesy of Dr. Doug Richmond, Purdue University

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Safety and Use of Neonicotinoid Insecticides in Landscapes

- Maintain buffers (a buffer strip of turfgrass 2-3 feet between the treated turf and the margin of the landscape bed)
- This will minimize the potential for unintended uptake by the roots of flowering ornamentals



Information courtesy of Dr. Doug Richmond, Purdue University

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Rose Rosette Disease



Allen, TX (April 2016); estimated that over 90% of roses in town are symptomatic for RRD



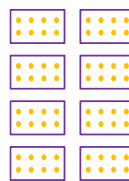
100% incidence of RRD symptoms in roses along I-85 near Charlotte, NC (May, 2016)

Slide courtesy of M. Windham, A. Windham, F. Hale, K. Cheng, K. Soto, B. England, & W. Hiltz, University of Tennessee

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Experiment 2: miticides



- | | |
|--------------------------|----------------------|
| Akari | Kontos |
| Avid + Horticultural oil | Sevin |
| Forbid | Talstar |
| Horticultural oil | Water Spray, Control |



Applied weekly from early May through mid September. Plots are in Zone 6a

Slide courtesy of M. Windham, A. Windham, F. Hale, K. Cheng, K. Soto, B. England, & W. Hiltz, University of Tennessee

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Miticides to reduce impact of RRD

- Akari (warning), Forbid (caution, professional use only), Kontos (caution) and Talsar (caution, restricted use only) treatments had no plants symptomatic at end of year 4
- In year 1, 88% of controls, 62% of plants in the horticultural oil (HO) and Sevin treatments and 38% of Avid+HO treatments were symptomatic for RRD
- By year 3 all of the controls, HO, Avid+HO and the Sevin treatments were symptomatic for RRD

Slide courtesy of M. Windham, A. Windham, F. Hale, K. Cheng, K. Solo, B. England, and W. Hitch, University of Tennessee

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What we don't know!



1. When should we start spraying?
2. When do we quit spraying?
3. What should be the spray intervals?
4. Are the spray intervals the same for all miticides?
5. Are there other effective miticides?

Slide courtesy of M. Windham, A. Windham, F. Hale, K. Cheng, K. Solo, B. England, and W. Hitch, University of Tennessee

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Current Miticide Work

- Using: Akari, Avid, Kontos, Forbid, and Talstar
- Plant: Knock Out Roses (3 gal bushes)
- Mite populations monitored in plots weekly and applications did not start until mite populations were detected to be increasing.
- Applications are at 2, 4 and 6 week intervals
- Every two weeks, plants are examined for RRD symptoms and mite populations are estimated for each treatment

Slide courtesy of M. Windham, A. Windham, F. Hale, K. Cheng, K. Solo, B. England, and W. Hitch, University of Tennessee

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Product 2788 – SePro Antiviral compound



- Antiviral efficacy trial (2 rate, application type (drench and/or spray) and timing is one week and treatments applied one week before inoculation)
- Evaluating for phytotoxicity issues
- Using with and without a miticide (Akari) – eriophyid mite counts done for all treatments
- SePro suggested that another compound SP2774 (common fungicide) boosts effectiveness – testing that

Slide courtesy of M. Windham, A. Windham, F. Hale, K. Cheng, K. Solo, B. England, and W. Hitch, University of Tennessee

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Questions?



Mulberry whiteflies

<https://tiny.utk.edu/ag/insectandmite>
<https://tiny.utk.edu/ag/turf insect>

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