

Eriophyid Mites

TREE DOCTOR TIPS

Eriophyid Mites

(Family Eriophyidae)

DESCRIPTION:

Eriophyid mites are the smallest arthropod pests on plants. Two common eriophyid mites are ash flower gall mite (*Eriophyes fraxiniflora*) and pine bud mite/needle sheath mite (*Trisetacus pini*). Because the mites have relatively short mouthparts, they feed on cells just under the plant surface and may cause galls, witches broom and browning or yellowing of leaves or needles.

Ash flower gall mite attacks male ash trees throughout the United States, resulting in the formation of galls on male flowers. Young galls are green, gradually changing to black as they mature and dry out in late summer. Some may develop up to 1 inch in diameter. Galls remain on the tree throughout the growing season and winter, detracting from the tree's appearance. If untreated, galls can cumulatively develop year after year, until their weight, combined with the weight of winter snow and ice, can cause affected branches to break and become a hazard.

Initially, the feeding activity of pine bud mites results in white-stippled needles, followed by yellowing/browning of the needles. Injury sometimes occurs first on the south-facing parts of the conifer and may resemble abiotic disorders.

HOSTS:

Each species of eriophyid mites tends to infest a particular host group. Ash flower gall mites attack ash trees (*Fraxinus* sp.). Pine bud mites normally attack pines, especially Austrian, red, Scotch and white pines.

BIOLOGY AND SYMPTOMS:

Eriophyid mites are worm-shaped and have two pairs of legs attached to the front of the body.

Ash flower gall mites are small enough to enter the flower buds of male ash trees before they fully open. The mites pierce and

suck while feeding. Galls develop from epidermal cells that respond to strong growth regulators in the mites' toxic saliva, which is specific for causing this type of gall.

Pine bud mites spend most of their lives and feed at the base of needles, under the sheath. While the mites are active even in cold weather, activity peaks in spring when populations can explode. Following emergence, young mites may be dispersed to new hosts by crawling, wind or mechanical means. To confirm an infestation, pull apart infested needles and observe with a 10X lens to spot the cryptic mites within the sheath.

MANAGEMENT:

For ash flower gall mites, consider an insecticide or horticultural oil. To optimize treatments, applications should be made approximately 7 to 10 days before flower buds are expected to open. A conservative estimate for targeting the applications can be as early as when buds are semi-swollen. Be aware that treatments may reduce gall numbers, but not eliminate them.

For pine bud mite/needle sheath mites: avoid widescale treatment because predators may be adversely affected. Monitor trees for symptoms associated with this pest. Applications should be made only when an infestation is severe and the mites are identified. Winter treatments with horticultural oils used at low rates (to prevent phytotoxicity) may provide some relief. However, the recommended time for treatment with an approved miticide is in very early spring.



FIGURE A. ASH FLOWER GALLS CAUSED BY ASH GALL MITE FEEDING

The scientists at **The Davey Institute** laboratory and research facility support our arborists and technicians in diagnosing and prescribing based on the latest arboricultural science. For specific treatment and application details, your arborist may consult *The Davey Institute PHC Handbook*.

