Eriophyid Mites
bud, blister, gall, and rust mites

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WHAT YOU SHOULD KNOW

- Eriophyid mites cannot be seen without a 20x hand lens or greater magnification.
- Eriophyid mites seldom cause serious injury or stress to plants; damage is normally aesthetic.
- Damage from eriophyid mites usually consists of leaf galls, bud or flower galls, blisters, scabbing, and deformities of leaves, stems, buds, and flowers.
- Control techniques include pruning, plant removal, insecticidal soap, horticultural oils, predatory mites, and broad-spectrum insecticides and miticides.

INTRODUCTION

Eriophyid mites are translucent, cigar-shaped microscopic mites that cause deformities on many plant species. These mites are noticed when their feeding causes abnormalities of plant tissues such as erineum, galls, brooms, leaf curling, blisters, rusts, silvering, fruitrussetting, and deformed buds, catkins, fruits, etc. Fortunately, these mites rarely cause serious harm to plants, and control is seldom needed. In fact, eriophyid mites can serve as an alternative food source for predatory mites when their primary food source is absent. In that way, eriophyid mites can actually help reduce outbreaks of spider mites and other insects on which predatory spider mites feed, by allowing predatory mites to survive in the absence of their primary food. There are 1,859 species of eriophyid mites described from around the world with many species still undescribed. Needless to say, you are likely to encounter these mites some time in your gardening future.

GENERAL BIOLOGY

Family Name: Eriophyidae
Range: Worldwide
Hosts: Some mites are host specific, while others attack many plant, tree, and shrub species (Table 2).
Identification of Adult: Nearly invisible to the unaided eye (1/100" in length), cylindrical/cigar-shaped, tapering from head to rear, and translucent white (Fig. 1). Unlike most mites, eriophyids only have 4 legs located near the head.
Life History: Mites generally overwinter as fertilized adult females under bud scales, or protected sites on or near the host plant, and emerge at bud break in spring. Both males and females are present throughout the growing season. Reproduction is continuous, with generations completed every 2-3 weeks; overlapping generations are present.
Key Habits: Overwintering females emerge from under bud scales and other protected sites to lay eggs and feed on new foliage when buds begin to break in the spring. This time is most adventitious for insecticide applications. Some may transmit viruses that can deform plants or

Fig. 1. Citrus rust mite (Phyllocoptruta oleivora).
Fig. 2. Microscopic view of an eriophyid mite (Aceria anthocoptes).
cause economic losses to various crops.

Damage description:
Below are pictures of symptoms caused by eriophyid mites categorized by plant part.

Fig. 3. Galls caused by boxelder pouch gall mite (Eriophyes negundii). 3

Fig. 4. Leaf blisters on pear caused by pear leaf blister mite (Phytophylloxera pyri). 4

Fig. 5. Erineum on Rocky Mountain Maple caused by Eriophyes calaceris. 5

Fig. 6. Finger galls on chokecherry caused by Phytophylloxera emarginata. 6

Fig. 7. Bronzing of pear leaves caused by pear rust mite (Epitrixus pyri). 8

Fig. 8. Russeting of pear fruit by pear rust mite (Epitrixus pyri). 8

Fig. 9. Cottonwood catkin gall mite (Eriophyes newessegii). 3

Fig. 10. Ash flower gall mite (Eriophyes fraxiniflorae). 7

Fig. 11. Hackberry witches broom caused by Eriophyes celtis. 3

Fig. 12. Example of a stem gall mite (Aceria sp.) on maple. 3

Fig. 13. Poplar bud gall caused by Eriophyes parapopuli. 3

Fig. 14. Damage caused by rose rosette virus transmitted by Phytophylloxera fructiphilus. 4

PHOTO CREDITS

3. Whitney Cranshaw, Colorado State University, Bugwood.org.
6. Clark, J.C. University of California Statewide IPM Project.
**Non-Chemical Control**

Cultural control practices that modify the growing environment can reduce the occurrence of unwanted pests.

- **Pesticide avoidance**: Overuse of inecticides and miticides can eliminate natural predators and can lead to pest resistance, making long-term control difficult.
- **Monitor and scout**: Periodic examination of plant material reveals Eriophyid populations before they increase or damage numbers.
- **Plant selection**: Use plants that are less susceptible to eriophyid mites, and that are adapted to Utah’s climate. Contact your local USU Extension office for recommendations. Make sure plants or planting material you select are free from eriophyid mites.
- **Prune**: Remove infested leaves or branches and remove from the property.
- **Plant removal**: Heavily infested plants such as tomatoes and wheat, may need to be removed to reduce the spread of mites. Some mites have secondary host plants, so removal of host weeds minimizes sources of re-infestation.

**Chemical Control**

If severe infestations are causing major aesthetic damage, stress, or economic loss, inecticides/miticides may be necessary. Consider reduced-risk pesticides to limit negative impacts on beneficial insects and the environment. Occasionally, broad-spectrum inecticides/miticides, or those that kill not only your target pest, but many other arthropods, may be necessary for quick reductions in mite numbers. The downside of broad-spectrum inecticides is that they can eliminate predators and lead to inecticide resistance in eriophyid mites and other insect populations (if used improperly).

**Reduced-Risk Chemicals**

- **Horticultural soaps and oils**: Apply dormant weight horticulural oils 7-10 days before bud break and again at bud break. Proper timing targets eriophyid mites and preserves beneficial arthropods. During the summer soaps and summer weight oils offer mite control or suppression. Proper timing can target other organisms in the horticultural supply. Use a product that is labeled for the target mite and has the ability to penetrate plant tissues to affect the mite directly. Be aware of injury to plants from high volume sprays or when spraying during hot weather.
- **Koalin clay**: A fine clay applied to plants in a liquid solution. Koalin clay acts as a feeding deterrent, and requires full coverage of foliage (top and bottom) to be effective. Frequent applications are needed, but may cause plant stress if used too often (inhibits photosynthesis).
- **Sulfur**: Sulfur has long been used for mite control. Full coverage is necessary for control. Do not apply when temperatures exceed 90°F, or during periods of high humidity.
- **Neem oil**: Azadirachtin (group unknown) is a botanical insect growth regulator acquired from neem trees.
- **Predatory mites**: Naturally occurring predatory mites often feed on Eriophyid mites and can keep populations at tolerable levels. Avoid the use of broad-spectrum inecticides to preserve predatory mites. Low or extinct populations of predatory mites may be supplemented with predatory mites available for order. One good option for hot and regions is a Gekkonid species (western predatory mite). Other species of predatory mites are available, but work best in humid conditions, such as in a greenhouse.

**Insecticides and Miticides**

Table 1 contains an abbreviated list of active ingredients effective against Eriophyid mites. Make sure the host plant is listed on product label you choose.

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<td>plant leaves</td>
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**Pesticide Avoidance**

Pesticide avoidance is that they can eliminate predators and lead to pest resistance, making long-term control difficult. Broad-spectrum insecticides/miticides, or those that kill not only your target pest, but many other arthropods, may be necessary for quick reductions in mite numbers. The downside of broad-spectrum insecticides is that they can eliminate predators and lead to pest resistance, making long-term control difficult. Broad-spectrum insecticides/miticides, or those that kill not only your target pest, but many other arthropods, may be necessary for quick reductions in mite numbers.

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