



Hawai'i Landscape Plant Pest Guide: Mites And Gall-Forming Insects

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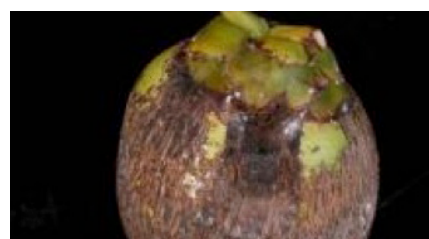
Coconut Mite (*Aceria guerreronis*)

Identification and Damage

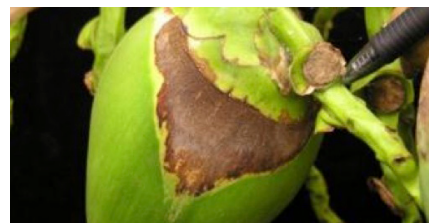
- Mites are microscopic and translucent, and may appear only as a silvery patch when viewed with a 10x hand lens.
- Coconut mite populations peak about half way through the 12-month-long development of coconut fruit, and decline so that very few, if any, mites remain on mature coconuts.
- Coconut mites disperse by wind or by being carried on insects or birds. In dense plantings, mites may be able to crawl between plants.
- Mites pierce tender tissue under the perianth protecting the stem end of immature coconut fruit. As fruit matures, the damaged tissue emerges as a pale patch from the perianth. When exposed to air, the tissue develops a cork-like surface with deep cracks.
- Fruits may prematurely drop or be deformed, stunted, and scarred.
- The coconut mite appears to only affect coconut palms; coconut palm varieties and related species may differ in their susceptibility to this mite.

What to Do

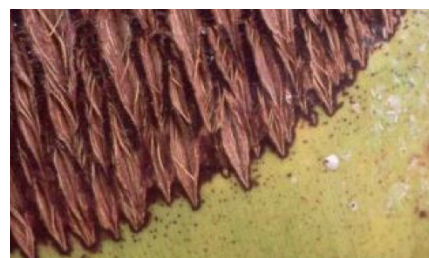
- Prune all coconuts in all stages of development to eliminate coconut mite populations.
- Predatory mites and some fungi (especially under humid conditions) attack the coconut mite but may not be sufficient to control heavy infestations.
- Select coconut palm varieties that are less susceptible to coconut mites.
- Contact miticides need to be applied frequently and continuously to provide control. Miticides must be EPA registered for use on coconut for human consumption of edible coconut flesh.



Perianth of coconut



Corky tissue emerges from perianth



Closeup of corky damage



Mites magnified. Actual size: 0.01" L x 0.002" W

Erythrina Gall Wasp (EGW) (*Quadrastichus erythrinae*)***Identification and Damage***

- Adult wasps insert eggs into young leaves and stems; larvae hatch and feed within plant tissue, causing formation of galls.
- Leaves curl and appear deformed, petioles and shoots become swollen; larvae pupate, and adult wasps emerge from exit holes cut through galled tissue. Heavy galling can result in loss of growth and vigor, defoliation, and death of affected trees.

What to Do

- A tiny wasp, *Eurytoma erythrinae*, was evaluated and released by HDOA in 2008 as a biological control agent specific to EGW. It feeds on EGW larvae and completes its life cycle enclosed within the galls of infested trees. Wiliwili trees are recovering from severe infestations that occurred prior to the release of this highly effective parasitic wasp.
- A systemic insecticide, imidacloprid, applied through trunk injections (IMA-Jet) to maintain a minimum of 4 ppm imidacloprid for up to a year, was effective in controlling EGW in *Erythrina* spp. trees.



Erythrina gall wasp larvae



Gall wasp pupae



EGW male (left) and female (right)



Galled wiliwili tree



Galled leaves caused by EGW infestation

Hibiscus Erineum Mite (*Aceria hibisci*)***Identification and Damage***

- This mite is very small and invisible to the unaided eye. Its body is wormlike, with two pairs of legs.
- These mites are slow-moving and rely on movement of infested plants, wind, insects, and birds for dispersal.
- They feed on actively growing plant tissue such as young leaves, stems and buds, which react to the intrusion by developing galls, or rounded, puckered bumps that give a lumpy appearance to the surface.
- The hibiscus erineum mite prefers the Chinese red hibiscus but will also attack other hibiscus species and hybrids.



Chinese red hibiscus heavily infested with mites.

What to Do

- Predatory mites are larger and can move quicker than the hibiscus erineum mite. If a number of fast-moving mites are observed on hibiscus with galls, do not apply miticides, and allow the predators to control the pest.
- Prune to remove severely damaged branches and leaves and discard them promptly by burning, burying, or enclosing them in a plastic bag.
- To prevent the spread of mite infestations, avoid taking cuttings from infested areas, even from apparently healthy plants.
- Consider planting hibiscus cultivars that are less preferred by the mite (see list in Hara et al. 2001).
- Prune severely affected branches before applying miticides, and repeat applications at least two to three times every two weeks.



Hibiscus cultivar less susceptible to mites.