

Insects and Other Pests in the Nursery



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Preventing Pest Problems

1. Grow a healthy plant
2. Monitor plant conditions
3. Monitor pests and diseases

Grow a healthy plant

Suitable pest- and disease-free
container and medium

Grow a healthy plant

- Watering
- Nutrition
- EC, pH

Grow a healthy plant



Keep pests out

Incoming plants

Grow a healthy plant

Keep pests out

Incoming people

Grow a healthy plant

- Old plants
- Sick plants
- Dead plants

Grow a healthy plant



Weeds inside
and outside

Monitor plant conditions

- Watering
- Nutrition
- EC, pH
- Sick plants
- Weeds

Monitor pests

Overview of nursery



Monitor pests

Check each plant species



Monitor pests

Check some individual plants

Growing point

Leaves

Stem

Roots



Monitor pests

Things to look for – leaf damage

- holes
- spots
- mines



Monitor pests

Things to look for – leaf damage

- distortion
- discoloration



Monitor pests



Things to look for –
death of growing point
wilting
stunting

Monitor pests



Things to look for –
webbing
frass
slime trails



Monitor pests

Things to look for –
sooty mold and ants



Some pests to watch out for

Piercing, sucking pests –
Aphids



Some pests to watch out for

Piercing, sucking pests – Psyllids



Asian citrus psyllid
(*Diaphorina citri*)



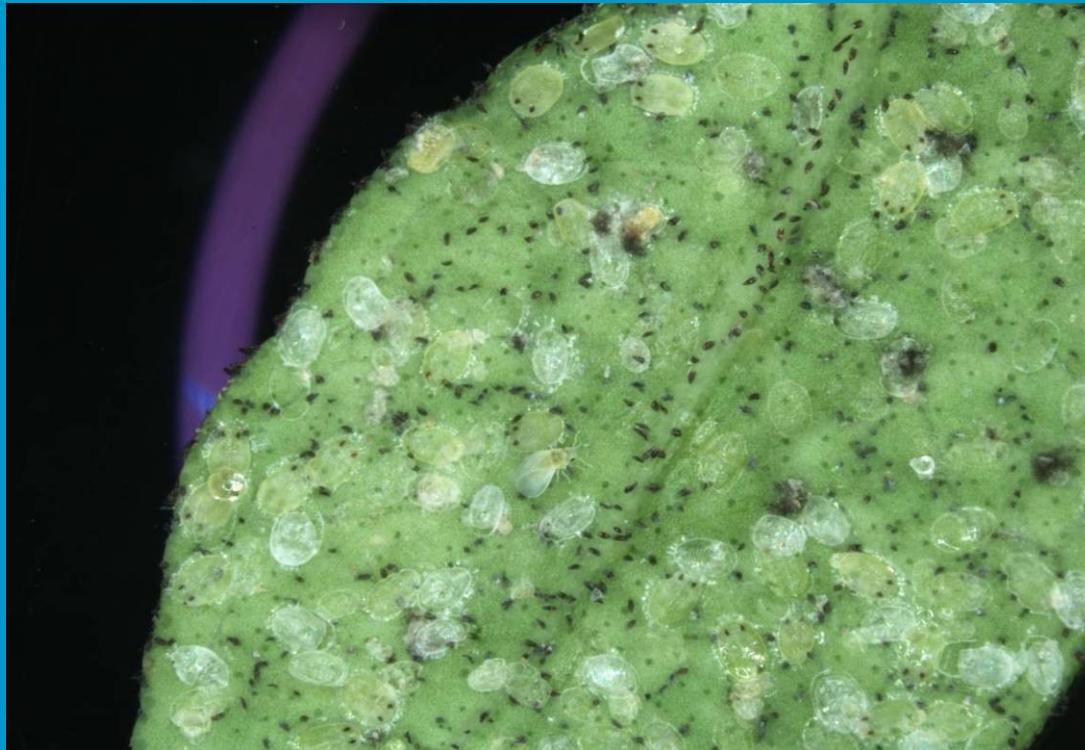
Eugenia psyllid
(*Trioza eugeniae*)



Ifilele psyllid
(*Insnesia glabrascuta*)

Some pests to watch out for

Piercing, sucking pests –
Whiteflies



Bayberry whitefly (*Parabemnesia myricae*)

Some pests to watch out for

Piercing, sucking pests –
Scale insects



Oleander pit scale
(*Asterolecanium pustulans*)



Green scale
(*Coccus viridis*)



Trilobed scale
(*Pseudaonidia trilobitiformis*)

Some pests to watch out for

Piercing, sucking pests –
Mealybugs



Solenopsis mealybug (*Phenacoccus solenopsis*)

Some pests to watch out for

Piercing, sucking pests –
Thrips



Red-banded thrips
(*Selenothrips rubrocinctus*)

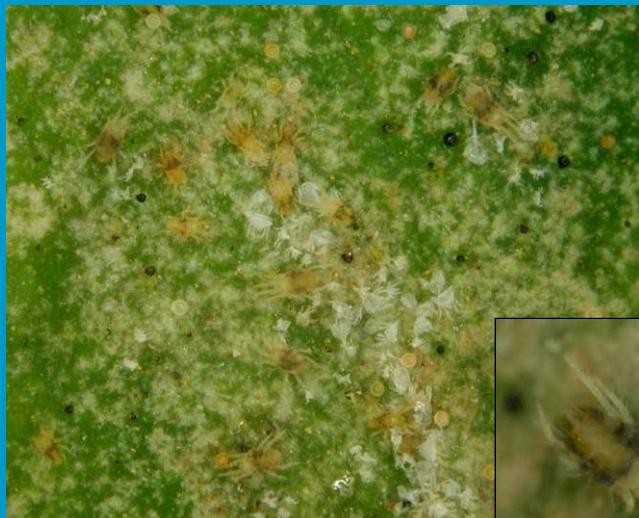


Gardenia thrips (*Thrips florum*)

Some pests to watch out for

Piercing, sucking pests – Mites

Spider mites (*Tetranychus* spp.)



Tava erinose mite (*Eriophyes* sp.)



Broad mite (*Polyphagotarsonemus latus*)

Some pests to watch out for

Chewing pests – Caterpillars



Castor semilooper (*Achaea janata*)



Brown awl (*Badamia exclamationis*)



Citrus leafminer (*Phyllocnistis citrella*)

Geranium plume moth (*Sphenarches anisodactylus*)



Some pests to watch out for

Chewing pests –
Boring beetles



Black twig borer (*Xylosandrus compactus*)



Orchid weevil (*Orchidophilus aterrimus*)

Some pests to watch out for

Chewing pests –
Slugs and snails



Giant African snail
(*Lissachatina fulica*)



Cuban slug
(*Veronicella cubensis*)

Some beneficials to watch out for

Predators



Jumping spider



Long-legged fly

Some beneficials to watch out for

Parasitoids



Controlling pests

- Prevention
- Natural enemies
- Manual (removal, roguing)
- Pesticides

Keeping pests off our islands

- Importing plant material to American Samoa
- Transporting plant material to Manu'a

Keeping pests off our islands

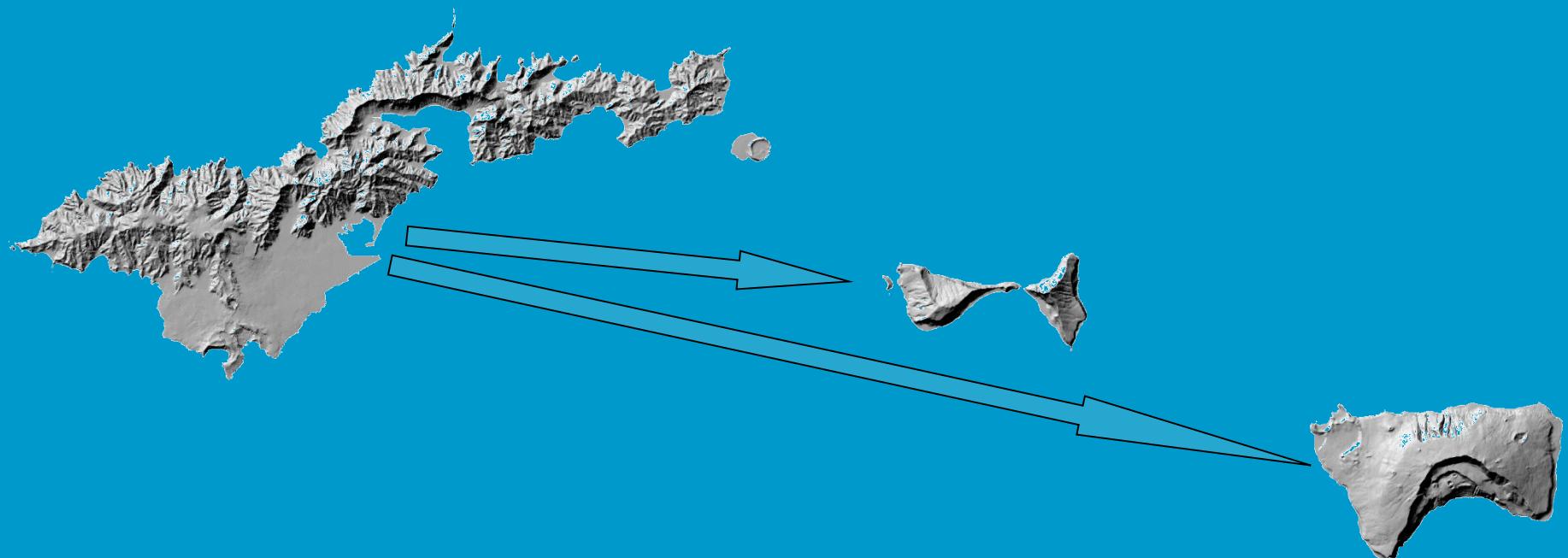
Importing plant material to American Samoa

Risk assessment

Keeping pests off our islands

Transporting plant material to Manu'a

Risk assessment – reduce risk



Keeping pests off our islands

Ants



Tropical fire ant (*Solenopsis geminata*)

- Tutuila ~2002
- Aunu'u ~2010
- Manu'a ~?

Keeping pests off our islands

Ants



Photo by Ronald Heu, Hawai'i DoA



Photo by Walter Nagamine, Hawai'i DoA

Little fire ant (*Wasmannia auropunctata*)

- Hawai'i ~1999
- Guam ~2011
- American Samoa ~?

Keeping pests off our islands

Asian citrus psyllid



Image courtesy of Michael Rogers, University of Florida

Keeping pests off our islands

Pests transferred from Tutuila to Manu'a in recent years



Seychelles scale
Icerya seychellarum



Coconut mealybug
Nipaecoccus nipae



Cotton lace bug
Corythucha gossypii



Phantasma scale
Fiorinia phantasma



Pink hibiscus mealybug
Maconellicoccus hirsutus



Tropical leatherleaf slug, *Laevicaulis alte*
Cuban slug
Veronicella cubensis

Pests in the nursery

- Prevent pest problems
- Grow a healthy plant
- Monitor plant conditions and pests
- Learn to recognize pests and beneficials
- Avoid bringing new pests to the islands