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Insect Pest Management in Pitahaya Production

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Keys to Success

- Vigilance in monitoring and scouting
- Catching an infestation before it's out of hand
- Preventative treatments when known serious pests are present or due to the time of year
- Using an effective treatment

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Basics

Monitoring is the regular inspection of plants and the use of other tools, such as sticky traps, in order to obtain information concerning the status of pest and natural enemy populations.

Monitoring programs involve gathering, recording, summarizing and evaluating data. The data is used to determine appropriate pest control actions and optimal timing of applications.

Methods of Sampling

Indirect sampling

- Yellow sticky traps
- Double sided sticky tape (scale insects)
- Pheromone traps
- Blacklight traps

Direct sampling

- Plant samples



Record Keeping

Monitoring Data

- Include the number of plants inspected
- A measure of the damage or infestation
- Pest species and abundance
- Location
- Name of the person sampling
- Any other important information such as susceptible varieties

Benefits of Monitoring

- Early warning system
- Locates specific sites of infestations
- Identifies the pest, numbers, stage of development
- Evaluate control measures
- Collecting and graphing monitoring data over time is useful in predicting future pest populations

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Keys Pests of Pitahaya

Reported pests
mites, thrips, ants, scales and mealybugs,
beetles, borers, slugs and fruit flies
The Hemiptera (Homoptera)
Insects with piercing and sucking
mouthparts
Moths
Fruit Flies


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Ants

BORIC ACID (Gourmet)
Liquid boric acid
formulation with sweet
bait for use only in
approved bait stations
that meet EPA ChemSAC
criteria. For use against
honeydew feeding ant
species, including
Argentine ant




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USDA Pest Risk Assessment

Potential pests (Scientific literature)

- Tarsonemid Mites
- Scarab beetles (June beetles)
- Weevils (*Cactophagous* species)
- Fruit flies (4 *Bactrocera* spp.)
- Ants (4 species)
- Lepidoptera (moths) multiple species in 4 families including cactus moth
- Hemiptera (numerous)

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The Hemiptera


Aphids

Hard (armored) scales
Soft scales
Leaf footed bugs

Leptoglossus zonatus, marks fruit and is suspected of transmitting fungal and bacterial diseases


Mealybugs (14 species in many genera)
Stink bugs

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Aphids



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Predators and Parasites

- Monitor for predators and parasites
- Look for predator/prey ratio
- Track population growth trends for pests, predators, and parasites
- Note impact of other pest control measures on these beneficial insects

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Ladybugs



Lacewing



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Syrphid Flies



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The Hemiptera

- Aphids
- Hard (armored) scales**
- Soft scales**
- Leaf footed bugs
 - Leptoglossus zonatus*, marks fruit and is suspected of transmitting fungal and bacterial diseases
- Mealybugs (14 species in many genera)
- Stink bugs

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Scale Insects

Armored Scales family Diaspididae

- The actual insect body is underneath the cover.
- Each nymphal stage (instar) secretes an enlargement to its cover
- Armored scales do not excrete honeydew.

Soft Scales family Coccidae

- Smooth, cottony, or waxy covering
- Usually larger and more rounded and convex than armored scales Their surface is the actual body wall of the insect and cannot be removed
- Soft scales feed in the fluid-conducting phloem tissue of the plant and excrete abundant honeydew



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Scale Insects

Control options

- Horticultural oils and soaps
- Best management is when crawlers are present
- Must catch the population early when numbers are low

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Western leaf footed bug

Common name: western leaf footed bug

scientific name: *Leptoglossus zonatus* (Dallas)

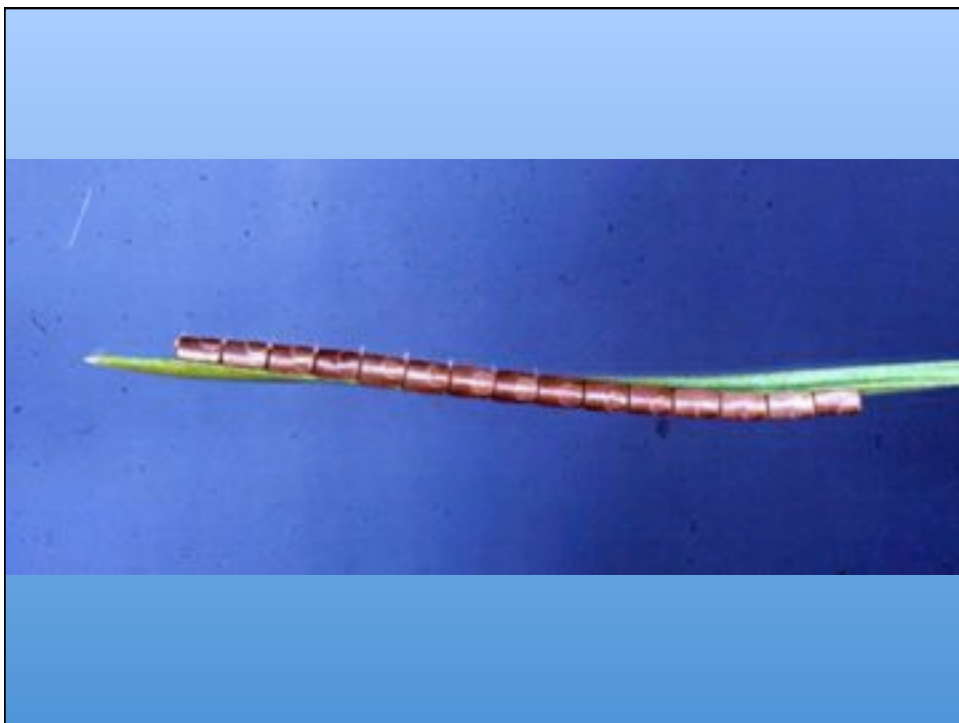
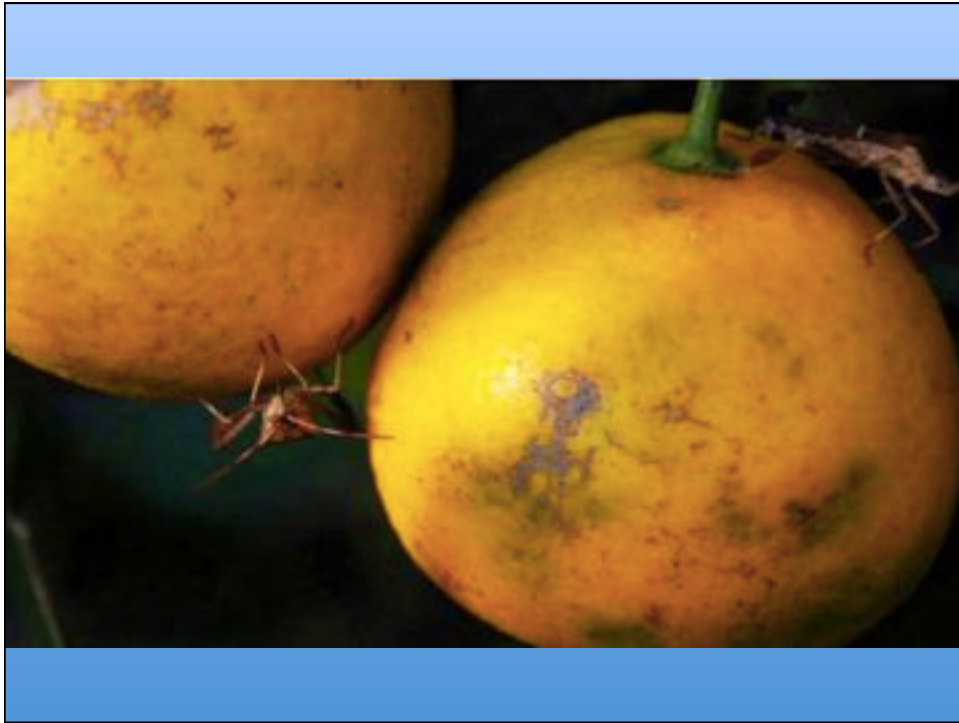
(Insecta: Hemiptera: Coreidae)

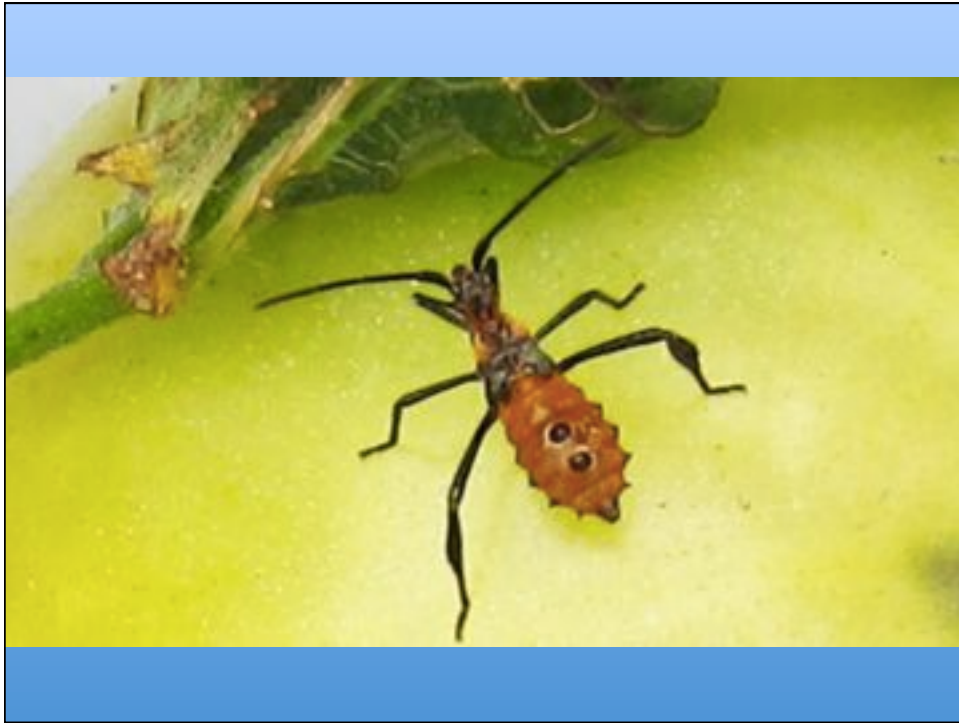
Emerging pest on a wide range of crops including corn, cotton, eggplant, peach, pecan, pomegranate, tomato and watermelon in the United States

Leptoglossus zonatus occurs in the southern and western United States, including Arizona, California, Florida, Louisiana and Texas

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Western leaf footed bug

Control options

- *Metarhizium anisopliae*, isolate NB, at a rate of 1×10^{10} conidia/tree has shown to produce approximately 92% mortality in adults
- *Beauveria bassiana* (Bals), isolate 119, at a dosage of 2.6×10^9 conidia/tree, produced mortality of near 99% in adults
- Neem oil caused a peak mortality rate of up to 100 percent

The Hemiptera

Aphids

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Soft scales

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Mealybugs



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Mealybugs

Control options

- Petroleum oils and soaps breakdown the wax
- Use the insecticide rate of oils and soaps
- Neem products on early instars
- Pyrethrins
- Rosemary Oil (Ecotrol)

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Mealybugs



Mealybug Destroyer Adult



Leptomastix, one of several common mealybug parasites



Mealybug Destroyer Larva

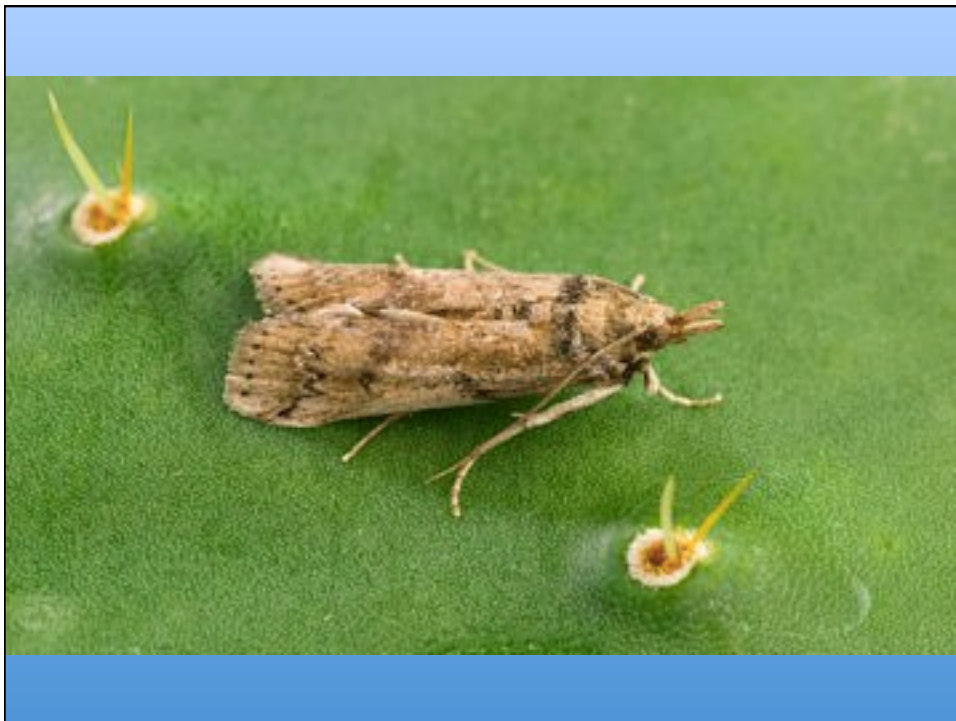
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Cactus Moth

Cactoblastis cactorum, commonly known as the **Cactus Moth**, **South American Cactus Moth**, or **Nopal Moth**


The arrival of *Cactoblastis cactorum* to the United States caused concern for the ornamental cactus industry in Arizona, California, Nevada, New Mexico and Texas





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Cactus Moth Pheromone



ISCA
TECHNOLOGIES
Pest Management Tools & Solutions

Product Categories Pest Categories Services

Product Categories > Lures > IT900 ISCALure-Cactorum pheromone lure for cactus moth

IT900 ISCALure-Cactorum pheromone lure for cactus moth
\$2.65

Price per unit	
10-249	250+
\$2.65	\$1.89

Add to Cart:

Max: 10 Units: 10

Pheromone lure for cactus moth, *Cactoblastis cactorum*. Nature identical, species specific, high isomeric purity pheromone loaded in controlled release rubber septa dispenser lure.

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Pesticides

- Oils and Soaps
- Organic products (botanicals)
 - Pyrethrins
 - Neem products
 - Rosemary oil (Ecotrol)
- Spinosad
- Food grade products (garlic oil, etc.)
- Bts for the leps

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Keys to Success

- Scouting
- Sanitation
- Exclusion or repulsion
- Knowing the common pests well
 - Confirm the identification
- Knowing the best method of controlling each pest
- Knowing the annual cycle of each pest

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