Pitahaya pests in Florida

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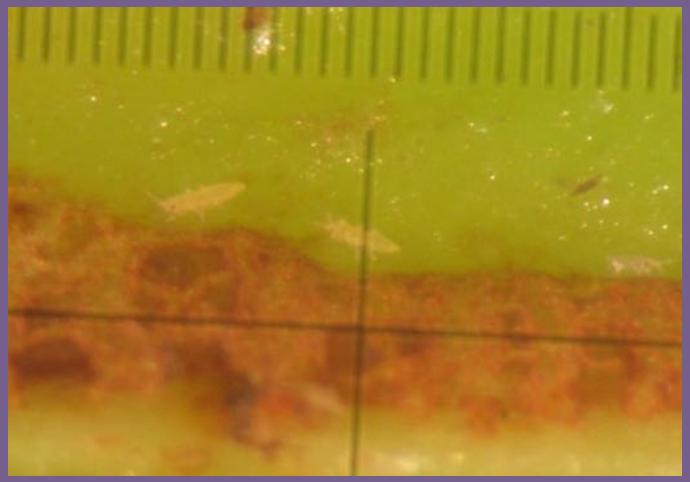
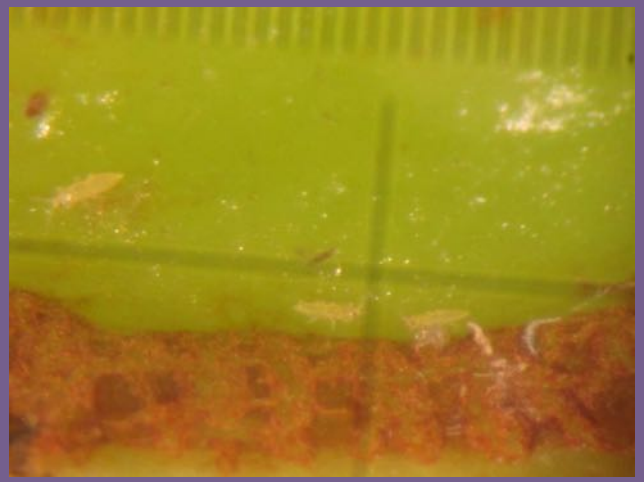
Key Pests: Thrips (*Scirtothrips dorsalis* Hood *Frankliniella occidentalis* Pergande)

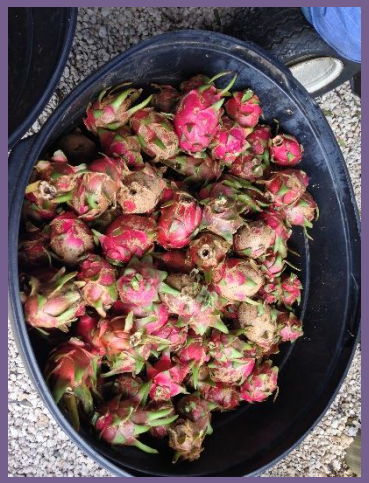
Damage and economic loss could be substantial: 25-80%

So far only reported in Florida

Thrips Damage
piercing and sucking mouthparts







The skin is damaged but the inside is OK

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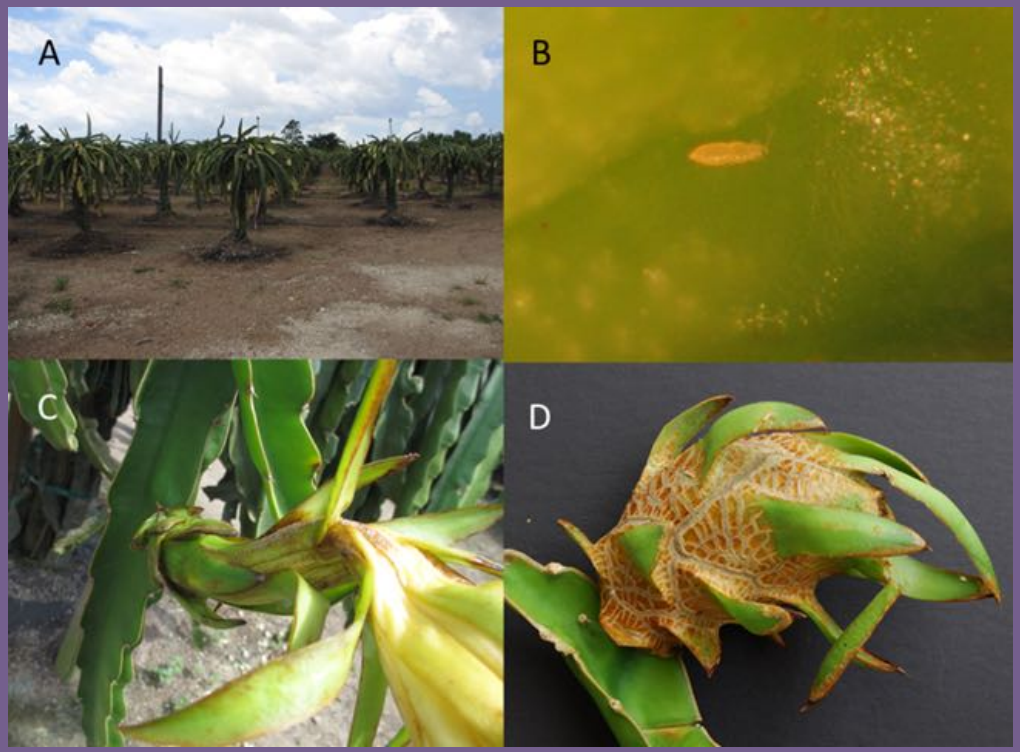
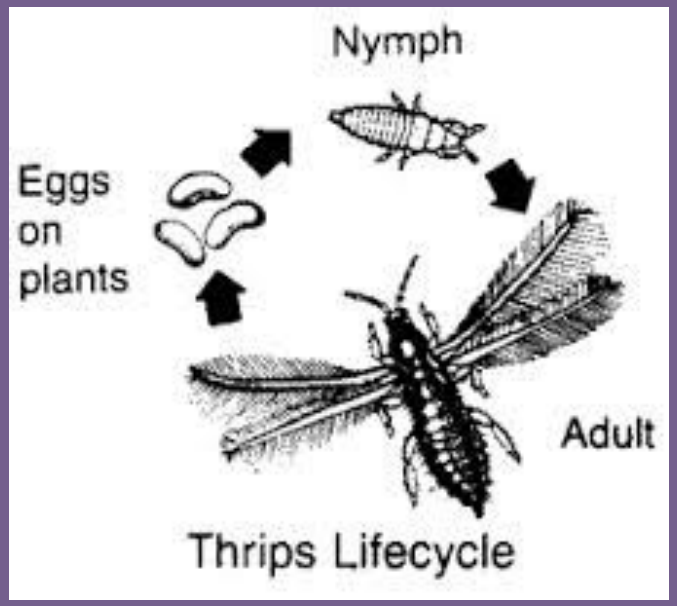
Life cycle: Thrips



http://www3.telus.net/conrad/insects/onthrips.html



12 to 22 days

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Plants in Florida on which *S. dorsalis* is known to reproduce:

•*Antirrhinum majus* L. - Liberty Classic white snapdragon
•*Arachis hypogaea* L. - peanut or groundnut grown in greenhouse
•*Begonia* sp. - begonia
•*Breynia nivosa* (W. Bull) Small - snow bush, snow-on-the-mountain
•*Capsicum annum* L. - pepper
•*Celosia argentea* L. - celosia, red fox
•*Coreopsis* sp. - tickseed
•*Cucumis sativus* L. - cucumber
•*Cuphea* sp.- waxweed, tarweed
•*Duranta erecta* L. - golden dewdrop, pigeonberry, skyflower
•*Euphorbia pulcherrima* Willd. - poinsettia
•*Eustoma grandiflorum* (Raf.)Shinn. - Florida blue lisianthus
•*Ficus elastica* 'Burgundy' Roxb. ex Hornem - Burgundy rubber tree
•*Fragaria* x *ananassa* - strawberry
•*Gaura lindheimeri* Engelm. & Gray - Lindheimer's beeblossom
•*Gerbera jamesonii* H. Bolus ex Hook. f. - Gerber daisy
•*Glandularia* x *hybrida* (Grönland & RÃ¼mpler) Neson & Pruski - verbena
•*Gossypium hirsutum* L. - cotton grown in greenhouse
•*Hedera helix* L. - English ivy
•*Impatiens walleriana* Hook. f. - super elfin white
•*Lagerstroemia indica* L. - crape myrtle
•*Ligustrum* spp. - ligustrum

Plants in Florida on which *S. dorsalis* is known to reproduce are as follows:

- *Ligustrum* spp. - ligustrum
- *Ocimum basilicum* L. - sweet basil
- *Pelargonium* x *hortorum* Bailey - geranium
- *Pentas lanceolata* (Forssk.) Deflers - graffiti white
- *Petunia* x *hybrida* - petunia easy wave red
- *Pittosporum tobira* (Thunb.) W. T. Aiton - variegated pittosporum
- *Plectranthus scutellarioides* (L.) R. - coleus
- *Plumbago auriculata* Lam. - Cape leadwort, plumbago, jamin azul
- *Ricinus communis* L. - castor bean
- *Rhaphiolepis umbellate* (Thunb.) Makino - Yeddo hawthorn
- *Richardia brasiliensis* Gomes - Brazil pusley, tropical Mexican clover, in greenhouse
- *Rhododendron* sp.
- *Rosa* sp. - rose
- *Salvia farinacea* Benth. - victoria blue
- *Shefflera arbicola* (Hayata) Merr. - umbrella tree
- *Tagetes patula* L. - marigold
- *Tradescatia zebrina* hort. ex Bosse - wandering jew
- *Vaccinium corymbosum* L. - highbush blueberry
- *Viburnum odoratissimum* var. *awabuki* (K. Koch) Zabel - sweet viburnum
- *Viburnum suspensum* Lindl. - viburnum
- *Viola* x *wittrockiana* Gams - Wittrock's violet
- *Vitis vinifera* L. - grapevine
- *Zinnia elegans* Jacq. - zinnia profusion white

Biological Control

Pirate bugs

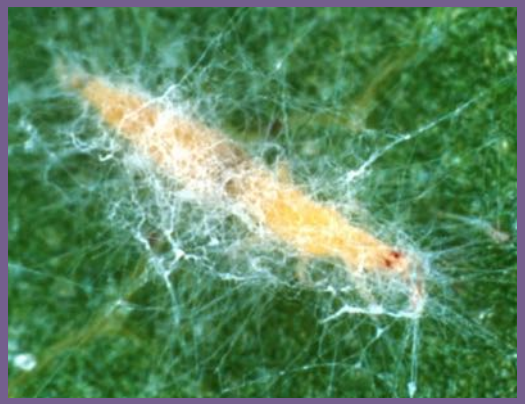

Photo: by Mark Hoddle

Entomopathogens

Beauveria bassiana

Isaria fumosorosea

Photo: by Steven Arthurs

Predatory mites

Swirski mites

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Chemical Control: Chilli Thrips

PESTICIDES REGISTERED FOR FLORIDA PITAYA PRODUCTION

4-10-15

Jeff Wasielewski, Tropical Fruit Crops Agent
Miami-Dade County Cooperative Extension
Homestead, FL

Jonathan Crane, Tropical Fruit Crop Specialist
UF/IFAS, TREC
Homestead, FL

Chemical	Brand	Pest(s) controlled
INSECTICIDES		
Azadirachtin	Align, Azatin, Aza-Direct, AzaGuard	general insecticide
Bifenthrin	Talstar-P[1]	various insects, mites
Capsicum oleoresin extract; garlic oil, soybean oil	Captiva	mites, thrips, psyllids, leafhoppers, lepidoptera, whiteflies
fenpropathrin	Tame[2]	ambrosia beetles, thrips, mirids, *Perseo* mite, mites
Potassium salts of fatty acids	M-Pede[4]	aphids, lace bug, plant bugs, mites, thrips, scales
Pyrethrin	PyGanic Crop Protection EC 1.4[4]	aphids, lepidoptera, thrips, others
1, Non-bearing		
2, Non-bearing in a nursery setting		

Entomopathogenic fungi? *Beauveria bassiana*

Key pest: Leaf-footed bug
Leptoglossus phyllopus

Leptoglossus zonatus **Key pest in Nicaragua, Colombia, Mexico.**

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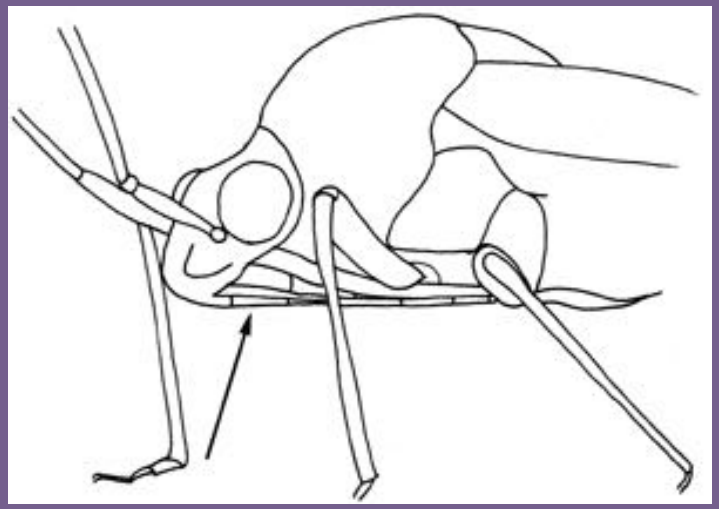
Damage : Leaf-footed bug



Piercing: first chlorosis, exudates promote ants, beetles, bacteria and fungi.

Life Cycle: Leaf-footed bug

Photograph by Lacy Hyche, Auburn University

Photograph by Henry Fadamiro, Auburn University.

Egg to adult = 50 days; adult = 73-53 days

Host Plants: Leaf-footed bug

Polyphagous

- Citrus
- Tomato
- Papaya
- Jatropha
- Guava
- Weeds

Photograph by Ayanava Majumdar, Alabama Cooperative Extension System.

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Physical Control: Leaf-footed bug

Handpick and crush the bugs

Wear gloves because of the odor they will emit when handled

Cultural Control: Leaf-footed bug

Weedy areas: food source and oviposition sites

Biological Control: Leaf-footed bug *Leptoglossus zonatus* (Dallas)

Entomopathogens
(Adults + Nymphs)
Beauveria bassiana
Metarhizium anisopliae

Parasitoids of Adults
(Diptera: Tachinidae)
Trichopoda pennipes & T. plumipes

Parasites of Eggs (Hymenoptera: Eupelmidae)
***Anastatus* sp. & *Brasema* sp.**

Parasites of Eggs (Hymenoptera: Scelionidae)
Gryon gallardoi* & *Trissolcus sp

Chemical Control: Western leaf-footed bug

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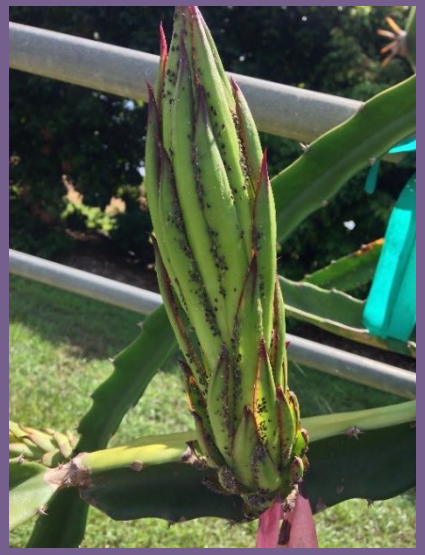
1, Non-bearing		
2, Non-bearing in a nursery setting		

Often aggregates in clumps= SPOT TREAT

Secondary pest: Aphids & Ants



Regularly controlled by natural enemies, only become important when their biological control is disrupted.

Sucking insects, honeydew.

Secondary pest: Mealybugs

Regularly controlled by natural enemies, only become important when their biological control is disrupted

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Biological Control: Aphids and Mealybugs

Regularly controlled by natural enemies, Coccinellids (lady beetles), lacewings, parasitoids, ect.

Maybe necessary to control ants that consume honeydew and protect aphids, mealybugs and scales from natural enemies.

Ants and homopteran insects (aphids, mealybugs & scales)

Ants and homopterans (aphids, mealybugs and scales) establish mutualistic interactions that enhance homopteran populations and hinder biological control

Control ants and allow natural enemies do their job

Secondary pest: Scales

Regularly controlled by natural enemies, only become important when their biological control is disrupted

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Secondary pest: Scales

Cultural Control:

Sanitation remove and destroy high infestations

Biological Control: Scales

Regularly controlled by natural enemies, only become important when their biological control is disrupted

Secondary pest: Banded Cucumber beetles *Diabrotica balteata* sp.

Life cycle 45 days – wide host range (Cucurbitaceae, Rosaceae, Leguminoseae, and Crucifereae are preferred hosts)

Larvae feed only on the roots adults on all parts of the plant

weed control reduces damage

Secondary pest: Euphoria (flower) beetle (*Euphoria sepulcralis*)

Larvae feed only on the roots, adults on Flowers
Polyphagous (Mangos, Avocados)
2 generations per year
Not a problem unless very high populations are found (not seen yet)
Larvae attract birds

Sap beetles (Nitidulidae)
Secondary pest or Pollinators ???

Considered pest in Mexico

High numbers observed in the field and little or no damage suggests that they are not pests

Other pest: Snails, rodents, birds

http://www.besgroup.org/2013/04/05/birds-do-eat-the-dragon-fruit-hylocereus-undatus/

Keep an eye on: Cactus moth *Cactoblastis cactorum*

Invasive pest: mainly attacking Opuntia cacti

Can potentially attack dragon fruit.

Keep an eye on: bud fly *Dasiops saltans* Townsend (Diptera: Lonchaeidae)

Revista Corpoica - Ciencia y Tecnología Agropecuaria (2012) 13(1), 41-46

Key pest of yellow pitaya in Colombia

Keep an eye on: bud fly *Dasiops saltans* Townsend (Diptera: Lonchaeidae)

Revista Corpoica - Ciencia y Tecnología Agropecuaria (2012) 13(1), 41-46

Dragon fruit Pests Summary

- **Key Pests**: Thrips and leaf-footed bugs
- **Secondary** Pests :
  - Aphids, Mealybugs Scales
  - Cucumber and Euphoria beetles
  - Snails, birds, rodents
- **Pollinators: Nitidulids? Bees?**
- **Potential Pests**: Cactus moth, bud fly, Fruit flies.

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Thank You……..
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