

Photo [USDA](#), /ARS



# ***NEW SERIOUS PEST OF LYCHEE AND LONGAN FOUND IN FLORIDA***

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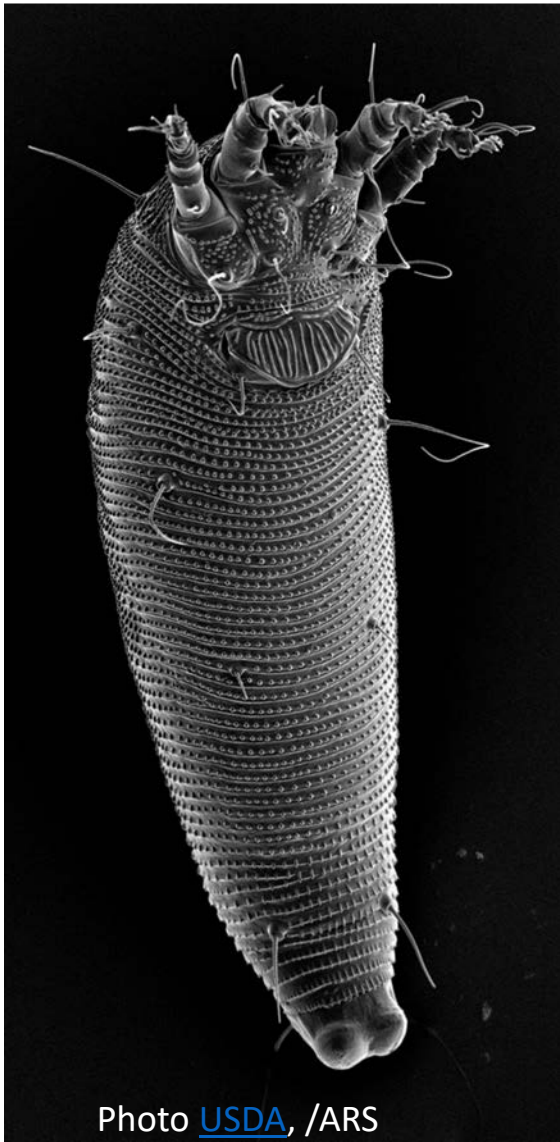


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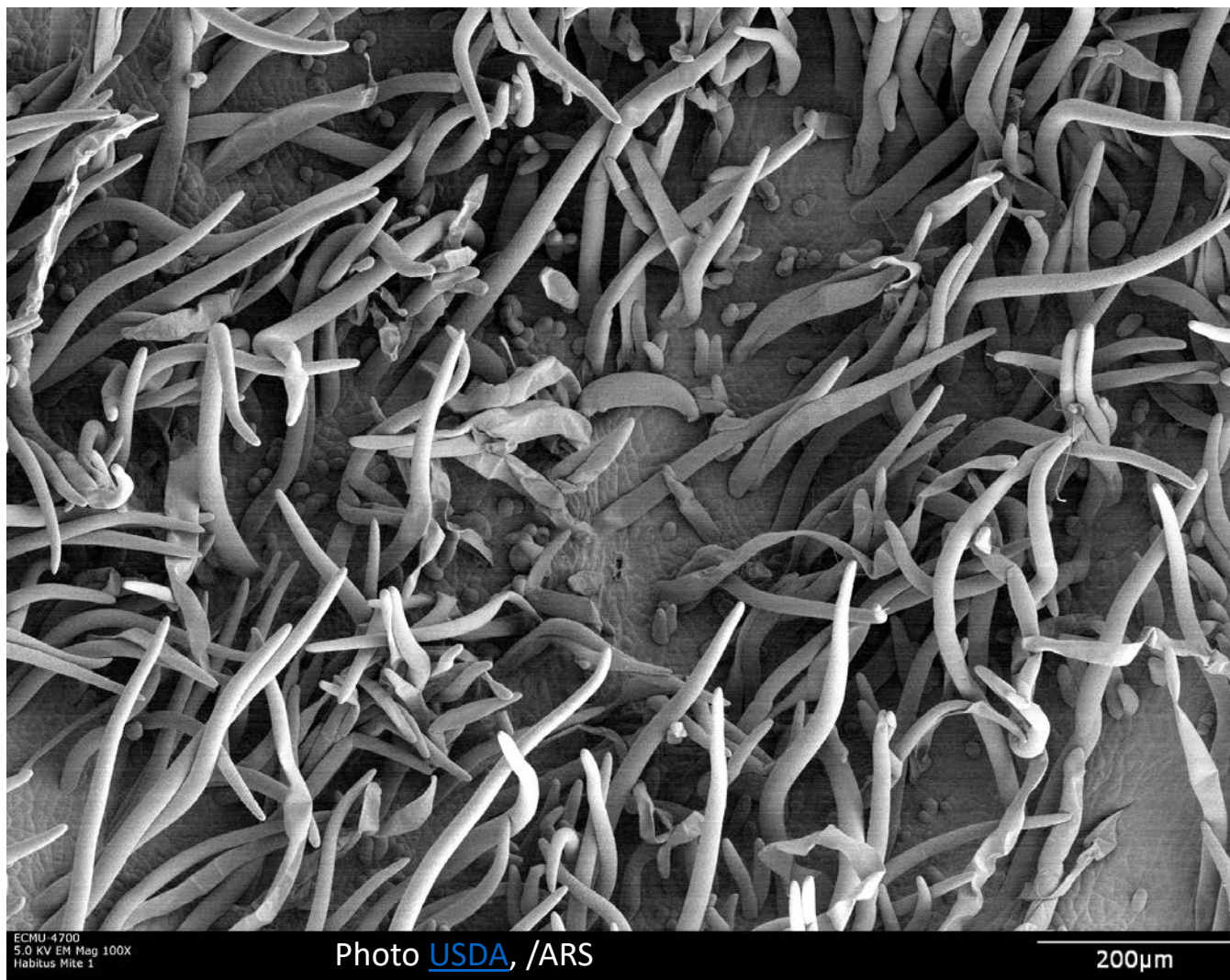
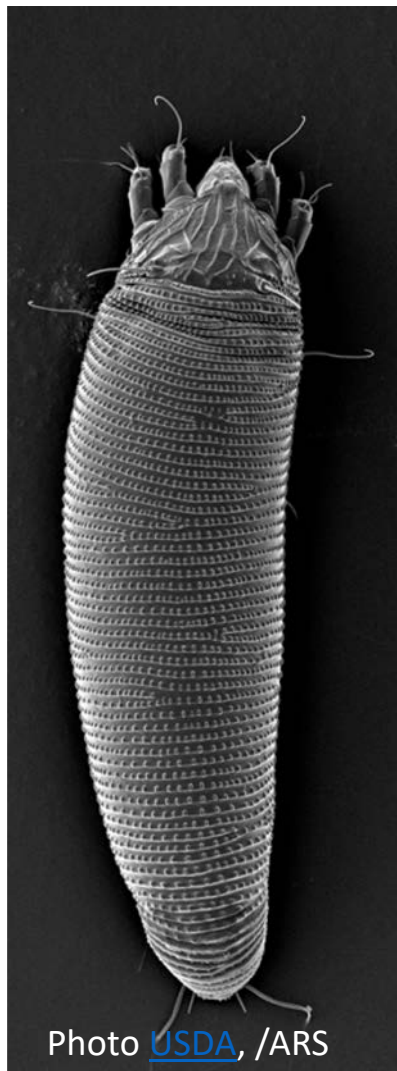
# *Aceria (Eriophyes) litchii*

## Lychee Erinose Mite LEM

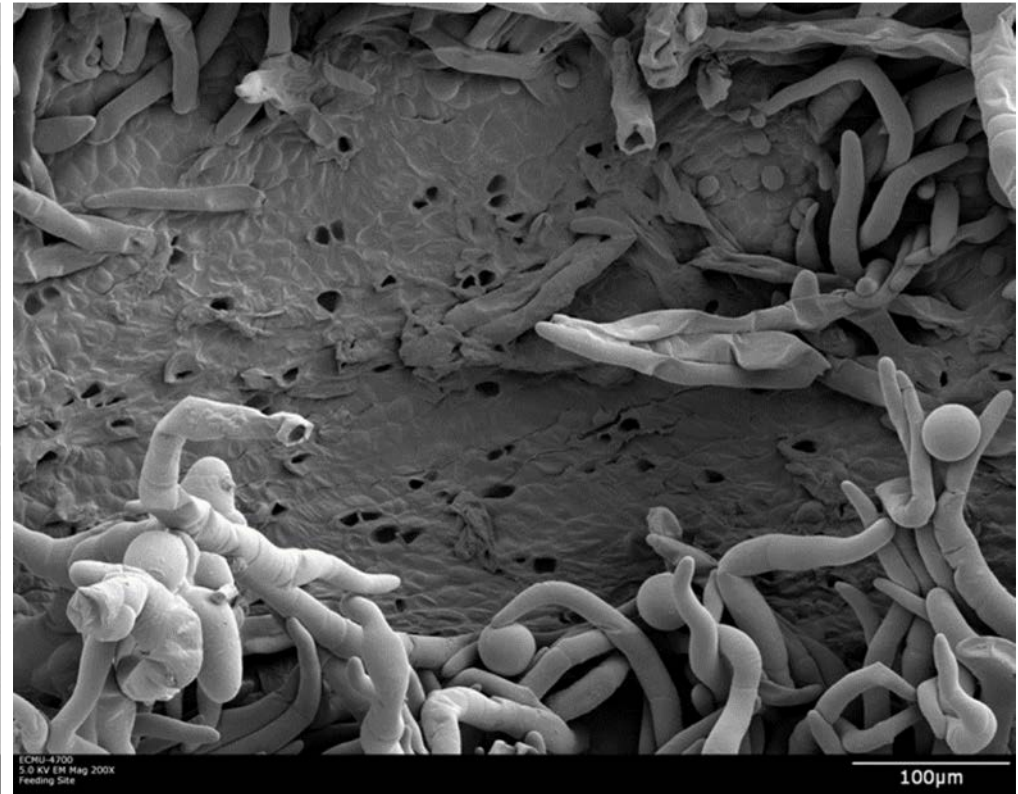
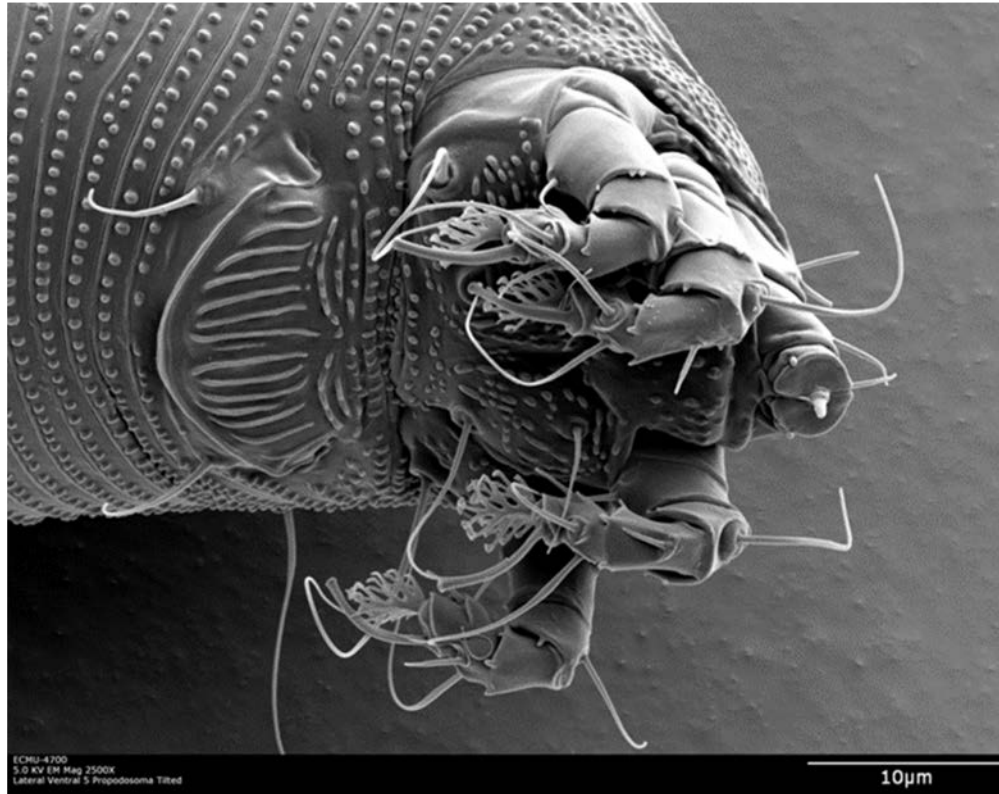
- Among the smallest arthropods that feed on plants
- Uses stylets to pierce and feed on leaf epidermal cells
- cells undergo morphological alterations, resulting in the abnormal growth of leaf trichomes, referred to as “**erinea**”



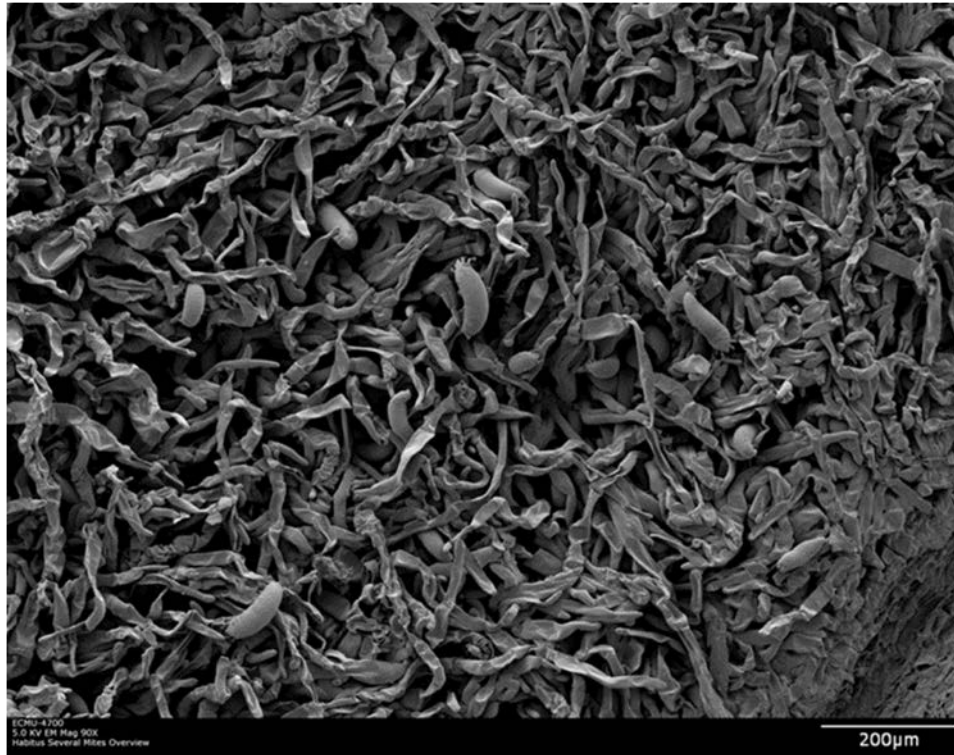






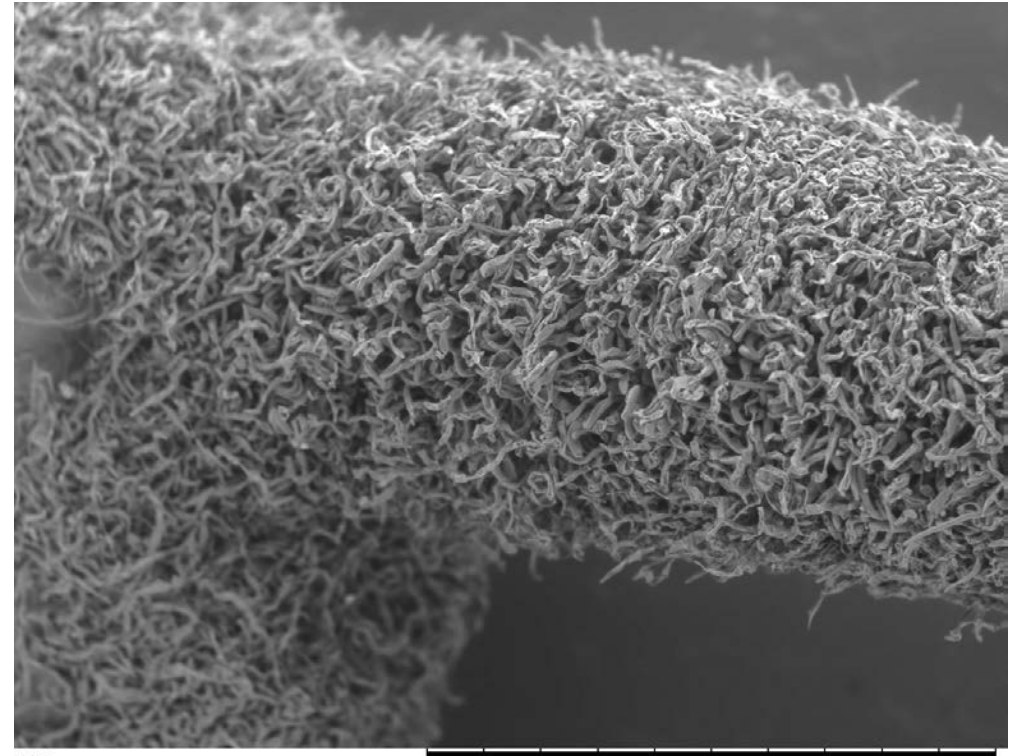
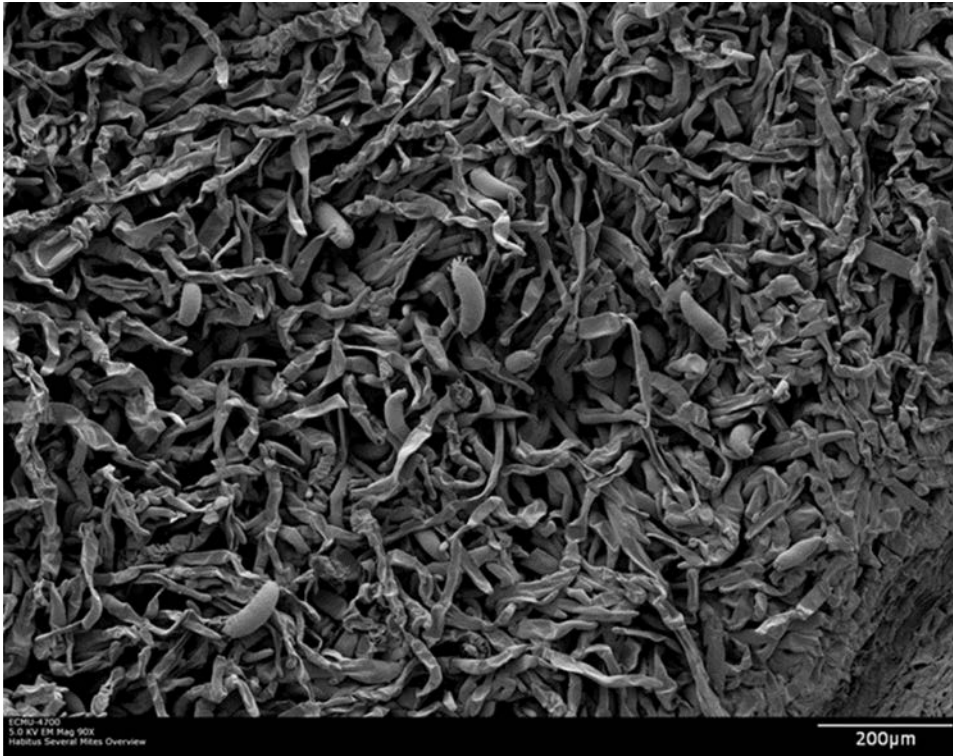


Photos by G. Bauchan, SEL-USDA., material D. Carrillo FL



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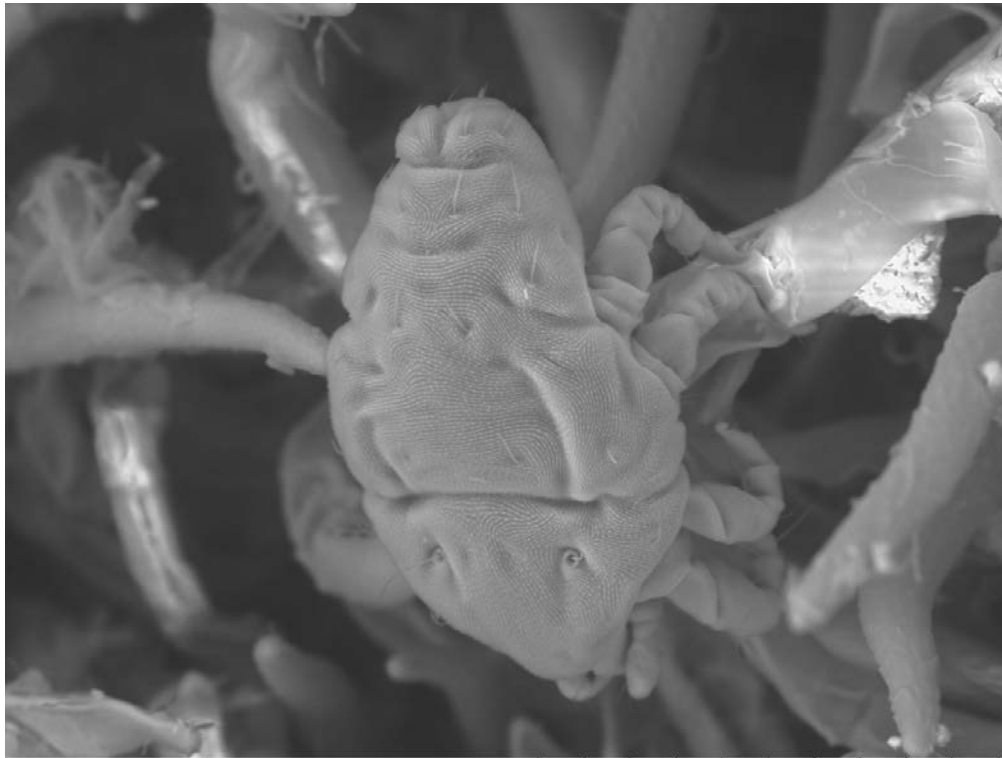


Photo by A. Ulsamer, SEL-USDA., material D. Carrillo FL

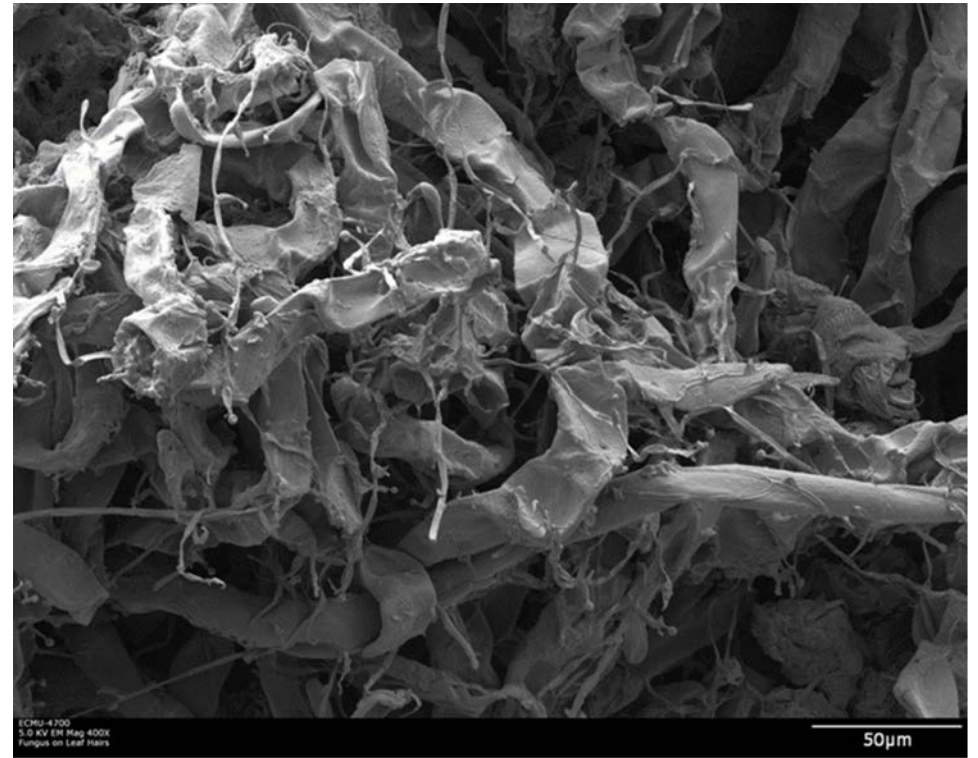
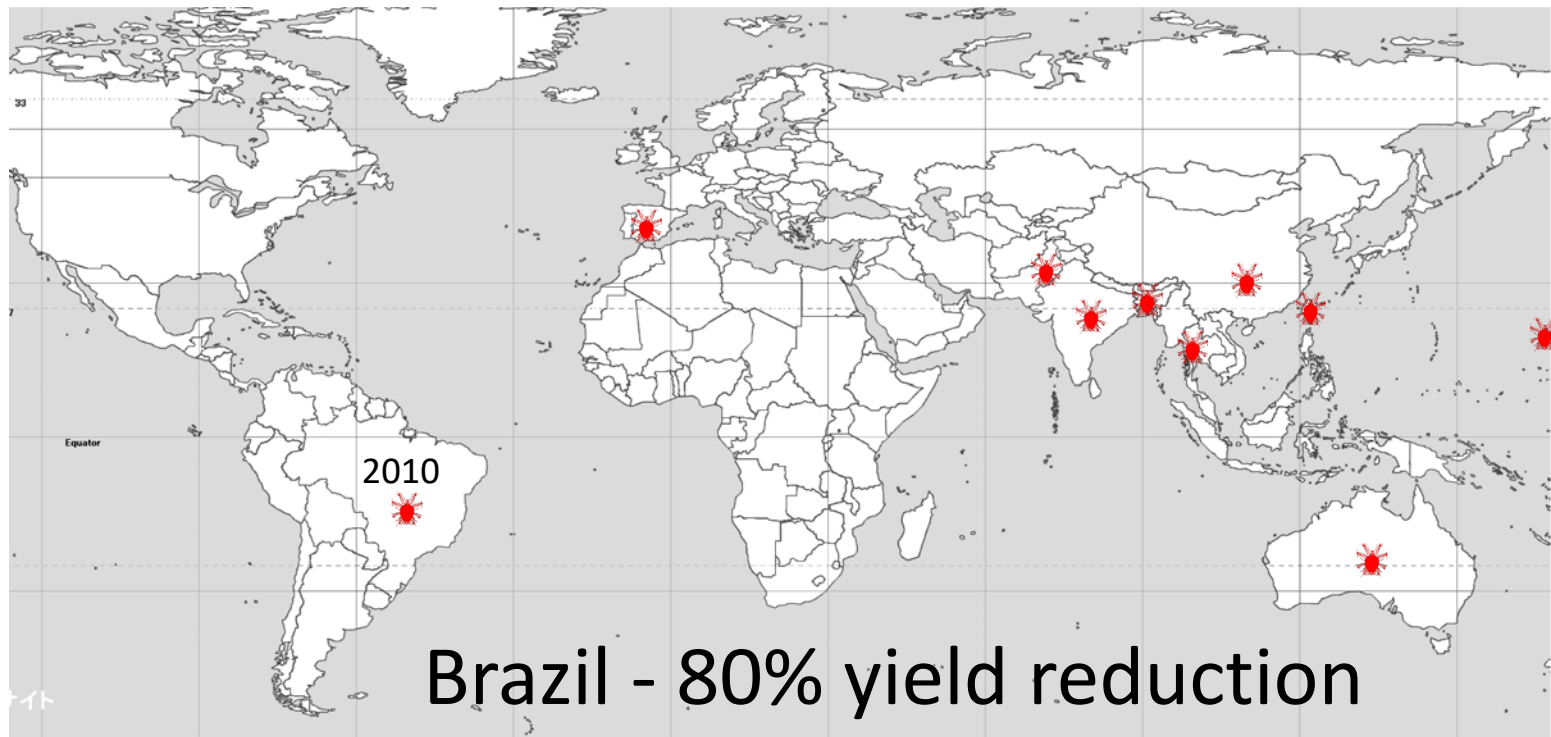


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India, Pakistan, Bangladesh, Thailand, China, Taiwan, Australia and Hawaii



# Host Range

- LEM is a lychee specialist, but has also been reported to infest longan in Taiwan.
- More susceptible during the flowering and fruiting seasons.
- No information is available about the susceptibility of longan.

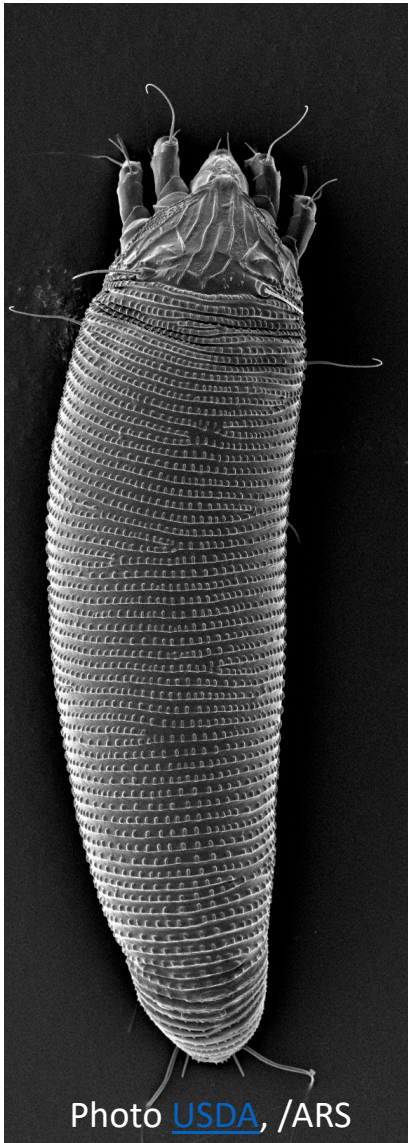


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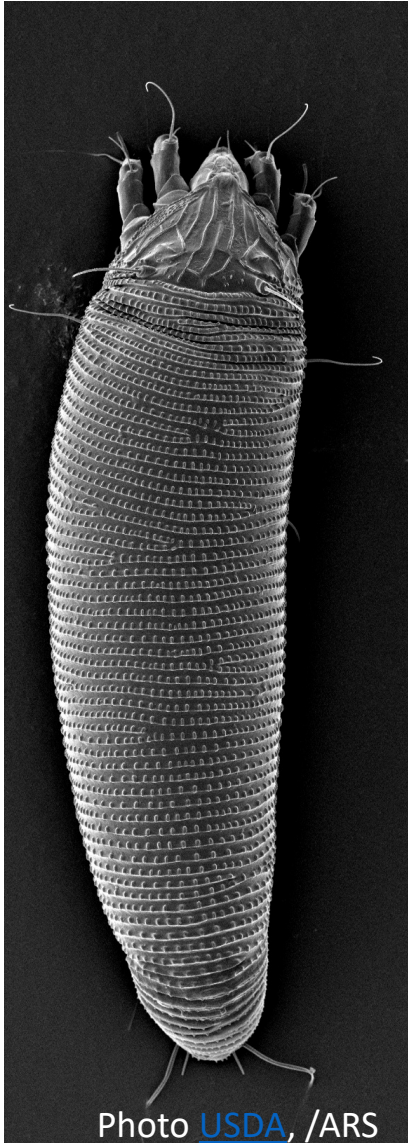


Photo [USDA](#), /ARS

# Environmental Conditions

- **Favorable conditions:** new growth on trees, moderately hot and dry periods.
- **Unfavorable conditions:** high temperature, high relative humidity, and heavy rainfall.

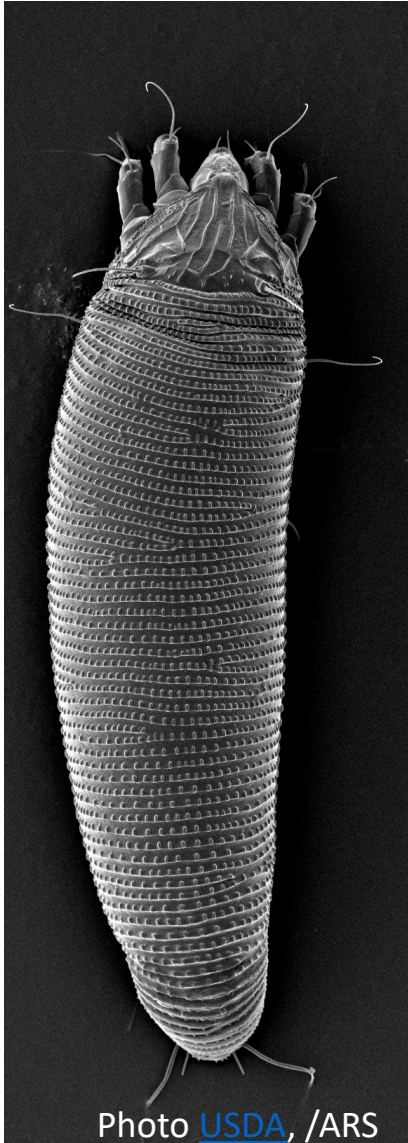


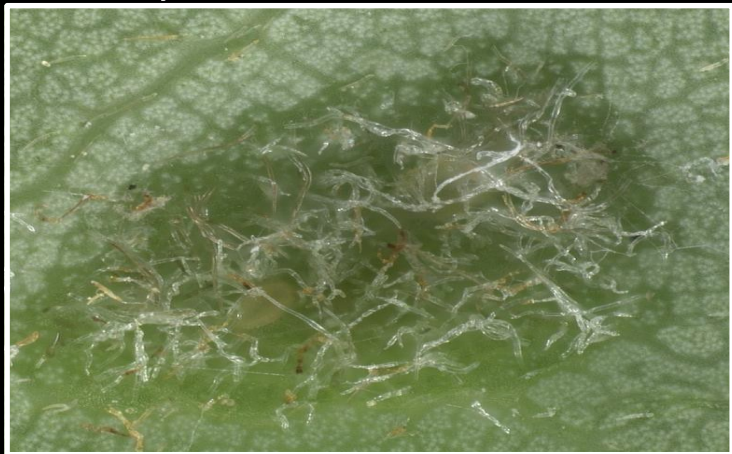
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# Dispersal

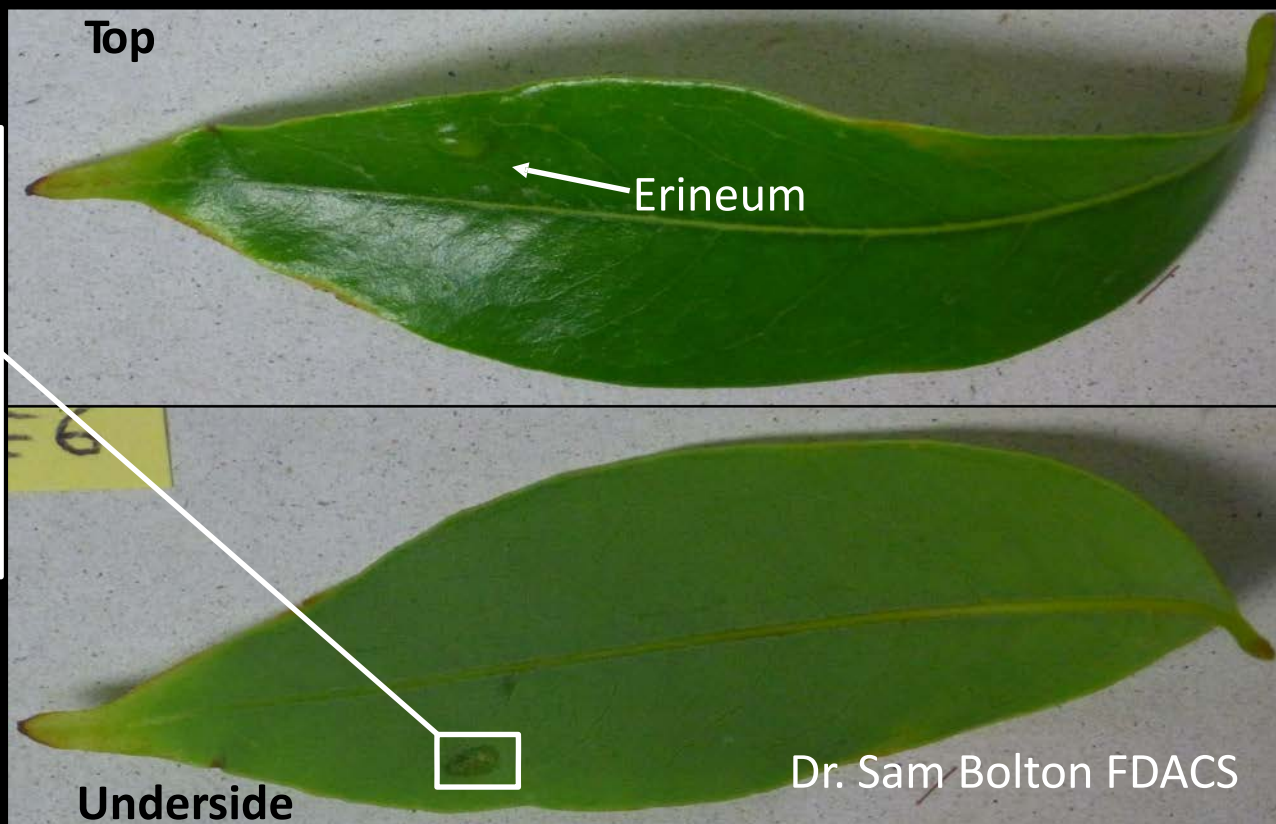
- By drifting on air currents.
- By honey bees.
- By movement of infested plants, especially when propagated as air-layers.
- By humans.



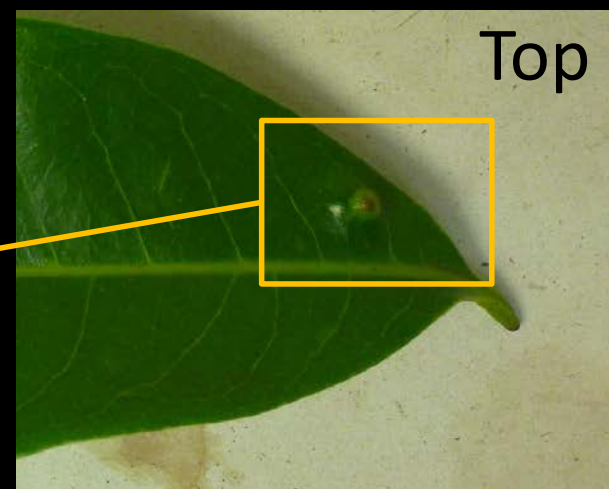
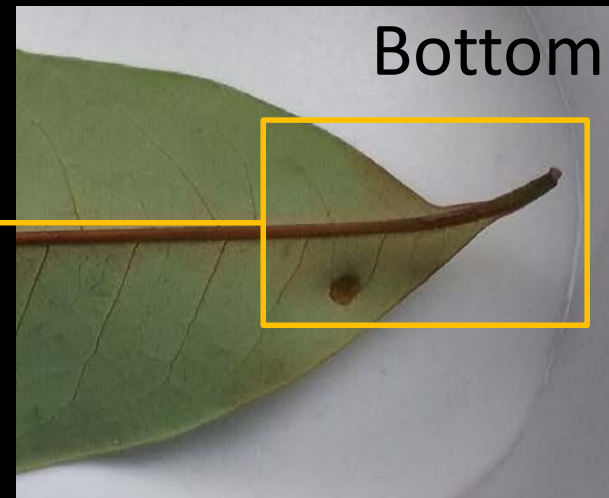
White hairs have a dark green background, which is visible due to the low density of hairs.



## Early-stage erineum gall revealed by white hairs on the underside



# White hairs turn amber



We need to find these early-stage galls (white on dark green patch) to minimize further infestation by the lychee erinose mite.





The galls of lychee erinose mites are highly variable in color, shape and size



**Not** lychee erinose mite galls (the underside lacks cluster of hairs)



Symptoms:  
mites infest young  
leaves (Pine Island, FL)





Symptoms:

Blisters in young leaves  
(Pine Island, FL)



Symptoms:  
leaf distortion and curling  
(Pine Island, FL)





Symptoms:

Hairy red masses on the  
underside of the leaf,  
**“erinea”**  
(Pine Island, FL)





Symptoms:

Mites and erineia spread to  
petioles, stems, panicles  
(Pine Island, FL)



Symptoms:

Erinea on panicles  
(Brazil)





Symptoms:

Erinea on fruit  
(Brazil)







### First detection (1955)

- Lychee grove located at Nokomis, Sarasota County.
- LEM failed to establish or was eradicated through a combination of extensive pruning, acaricide treatments and extremely cold temperatures registered in 1960.



## Second detection (1993)

- Coral Gables, Miami-Dade County.
- Infested trees imported from China were destroyed in order to eradicate LEM.





## Third detection (2018)

Pine Island, Lee County.

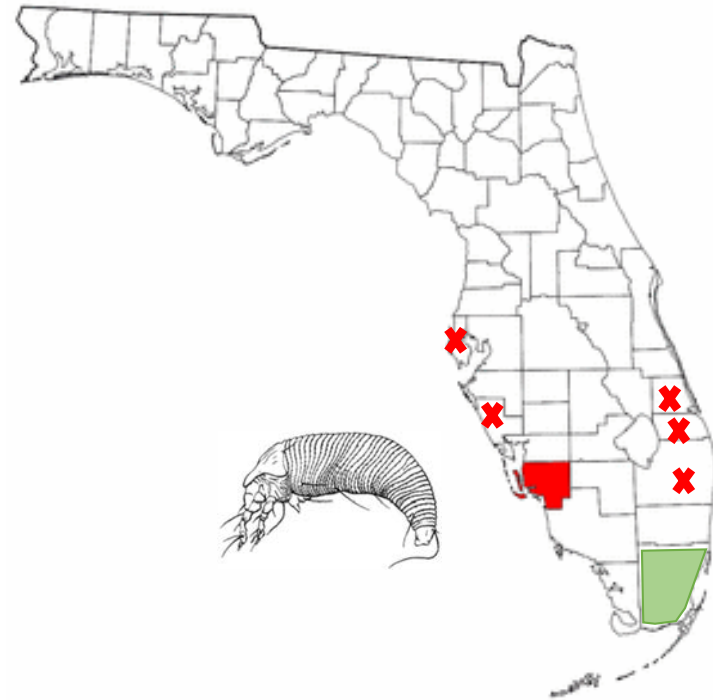
Infestations were recorded on young leaves, stems and inflorescences of approximately 30 young trees.



## Third detection (2018)

Epicenter: Pine Island, Lee County. Isolated trees in Cape Coral.

- ✗ Palm Beach, Martin, St. Lucie, Sarasota and Pinellas Counties in containerized trees from a nursery located in Pine Island.



FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

# PUBLIC NOTICE

## QUARANTINE IN EFFECT FOR LEE COUNTY

*Do Not Move Lychee Out of Lee County*



The Florida Department of Agriculture and Consumer Services has put an immediate quarantine in place for all of Lee County due to the presence of a major pest of lychee, *Aceria litchii*, known as lychee erinose mite. This pest has been found in several locations in Lee County including in lychee groves on Pine Island, and on residential properties and plant nurseries in other areas of the county.

To prevent the further spread of this major pest, the department is prohibiting the movement of lychee fruit or plant parts (trees, leaves or stems) out of the county.

**NO LYCHEE FRUIT OR PLANT PARTS CAN BE MOVED OUT OF LEE COUNTY  
UNLESS THE FOLLOWING CONDITIONS ARE MET:**

- Growers, harvesters and shippers sign compliance agreements with the Florida Department of Agriculture and Consumer Services.
- Lychee fruit is harvested and packed in Lee County for shipment outside of Florida only.

**No lychee fruit or plant parts can be moved out of Lee County to other locations in Florida.**

**For more information, please contact,  
1-888-397-1517**



# Current commercial grower control recommendations

## Scouting

- LEM migrates to new shoots, leaves, flower buds - any active growth
- Frequent and regular
- Inspect foliage, especially during vegetative flushes
  - After harvest when shoots are induced to grow because of clipping of fruit clusters
  - During any subsequent flush
  - Key is to control this mite prior to the spring bloom, fruit set, and fruit development period
- Please notify FDACS – DPI at 1-888-397-1517 or [DPIHelpline@FreshFromFlorida.com](mailto:DPIHelpline@FreshFromFlorida.com) immediately if you spot lychee trees with symptoms of an erinose mite infestation

# Removal of infested branches

- Prior to pruning, apply whitewash (50:50 mix of white latex paint and wter) to all limbs and trunks from the height at which trees will be cut to the base of the tree (to the ground)
- Remove by pruning all vegetation (leaves) from infested and nearby trees – hatrack trees
- Disinfest all pruning equipment with 10% bleach solution (9:1, water:bleach)
- Do not move this material off-site.
- Obtain burn permit – call local Florida Forest Service
  - Link to interactive contact map <https://www.freshfromflorida.com/Divisions-Offices/Florida-Forest-Service/Wildland-Fire/Burn-Authorizations>
  - Miami-Dade growers call 305-257-0875 or 954-475-4120

# Hatracking lychee trees after whitewash

## Whitewash - cut



Regrowth  
and recovery





# Acaricide treatments to protect emerging and new flush

- Time applications to protect emerging and developing flushes
- Protect new flushes from emergence through maturity (hardening off)

Type of agriculture	Effective acaricides	Comments
Conventional	Agri-Mek (abamectin)	Restricted use pesticide; must have license to apply; 2 applications per year/acre maximum; <u>mix with horticultural oil or surfactant</u>
Organic and conventional	Azadirachtin formulations	Numerous brand names: Aza-Direct, AzaGuard, Azatrol EC, others.
Comment: (1) Elemental sulfur is not registered for use on lychee and longan trees at this time and; (2) never apply a sulfur spray within 2-3 weeks or more of an oil spray – result – leaf/stem death		

# Recommendation sequence for control of LEM

## All commercial growers

1. Obtain burn permit
2. Prune trees to remove all foliage
3. Burn all stems and leaves on-site (do not move this material to a new area)

## Conventional growers – i.e., non-organic

1. When trees begin to flush, (i.e., new shoots and leaves emerge) apply Agri-Mek mixed with horticultural oil to affected trees and adjacent trees
2. When new flush has fully emerged but before leaves expand, apply azadirachtin at a 7-day interval (this may be 2-3 additional sprays)
3. When the new leaves have fully expanded but **not hardened** off apply Agri-Mek mixed with horticultural oil

# Movement of the erinose mite

- LEM can be moved or disseminated by the movement of infested plants (i.e., leaves, stems, and fruit), especially when plants are propagated as air layers from infested parent trees.
- The mite may also be moved by touching the symptomatic leaves transferring live mites to additional leaves and trees.
- Please do not move these mites by moving infested plant material to new locations.
- Remember to burn infested plant material on site.



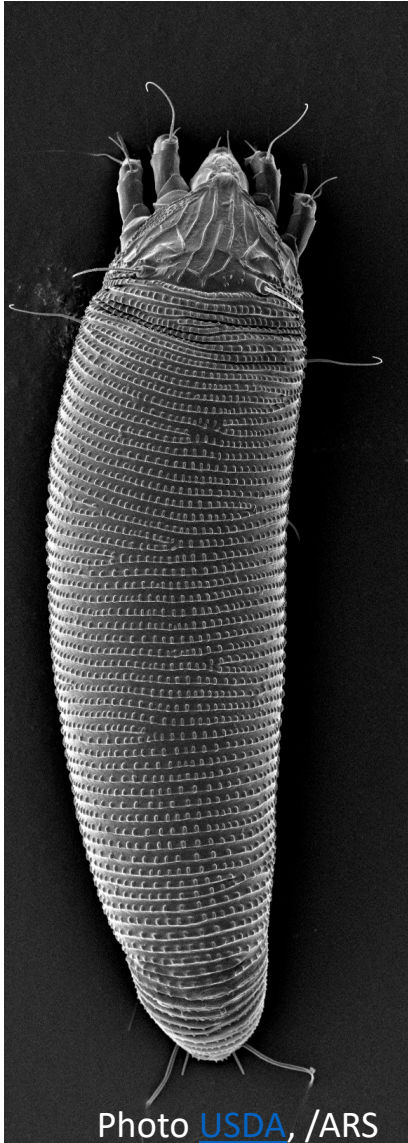
# For more information

- FDACS DPI
  - <https://www.freshfromflorida.com/Divisions-Offices/Plant-Industry>
  - <https://www.freshfromflorida.com/Divisions-Offices/Plant-Industry/Pests-Diseases/Aceria-litchii-Lychee-Erinose-Mite>
- UF/IFAS Tropical Research and Education Center
  - <http://trec.ifas.ufl.edu/>
  - <http://blogs.ifas.ufl.edu/trec/2018/03/19/new-serious-pest-lychee-longan-trees-found-florida/>
- Miami-Dade County Extension
  - <http://sfyl.ifas.ufl.edu/miami-dade/>
  - Jeff Wasielewski at [jwasielewski@ufl.edu](mailto:jwasielewski@ufl.edu) or 305-248-3311 x.227

Thank You!

Questions and Discussion





# Management

- Cultural control: pruning eliminating and burning infested branches
- Timed acaricide sprays to **protect new flush** after the sanitation
- Sprays start at bud emergence until leaves have hardened
- Natural enemies to be evaluated