Phantasma Scale

Fiorinia phantasma

Osborne, McKenzie, and Roda

POTENTIAL THREAT

This scale does pose a threat to nursery and landscape industries as well as to homeowners, because it can infest 90 species of plants in 28 families and 75 genera, including many important ornamentals and several fruit crops.

SCOUT

SCOUT SCOUT SCOUT SCOUT SCOUT
SCOUT SCOUT SCOUT SCOUT

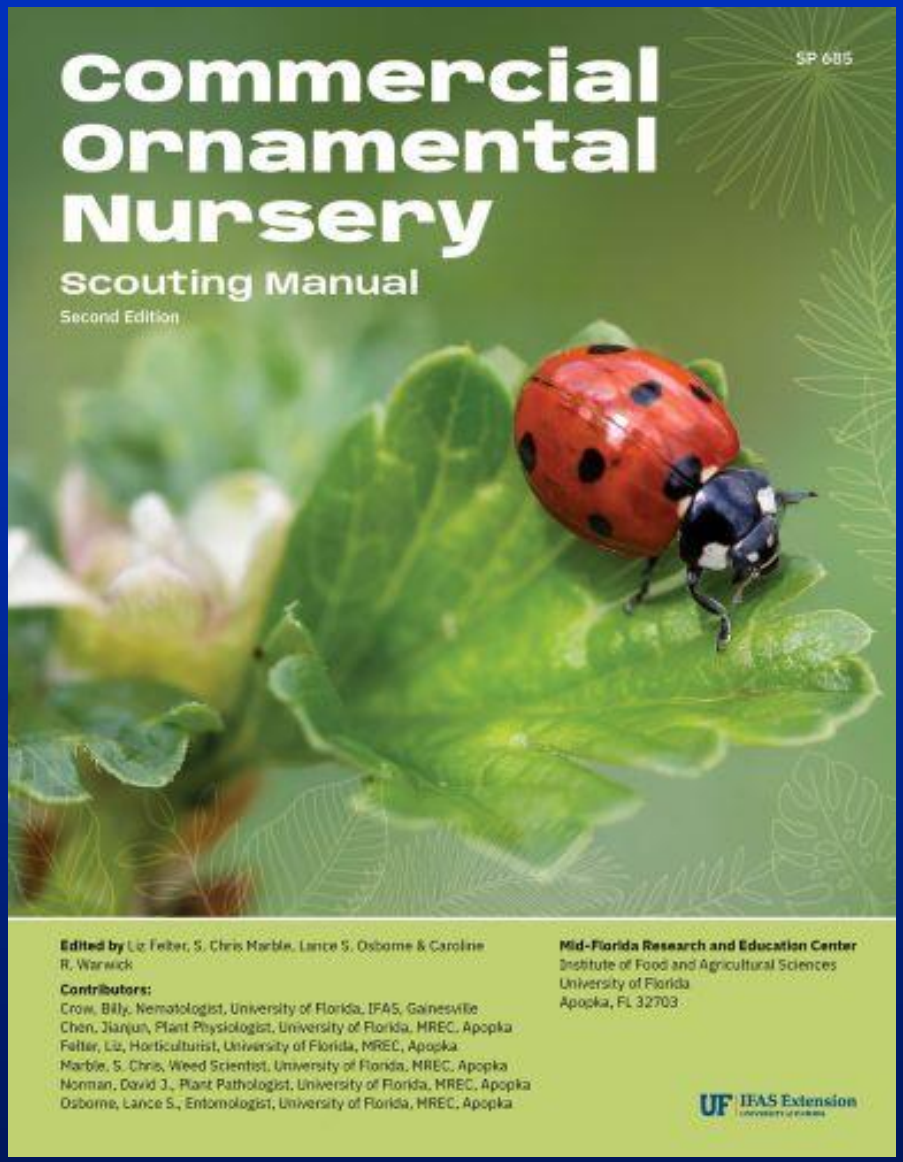
SCOUT SCOUT SCOUT SCOUT

SCOUT SCOUT SCOUT SCOUT SCOUT
SCOUT SCOUT

Scouting

- Look for eggs and crawlers.
- Try to determine when a large portion of scales are in the crawler stage.
- Need a hand lens.


Gators
10X CODDINGTON
BAUSCH & LOMB

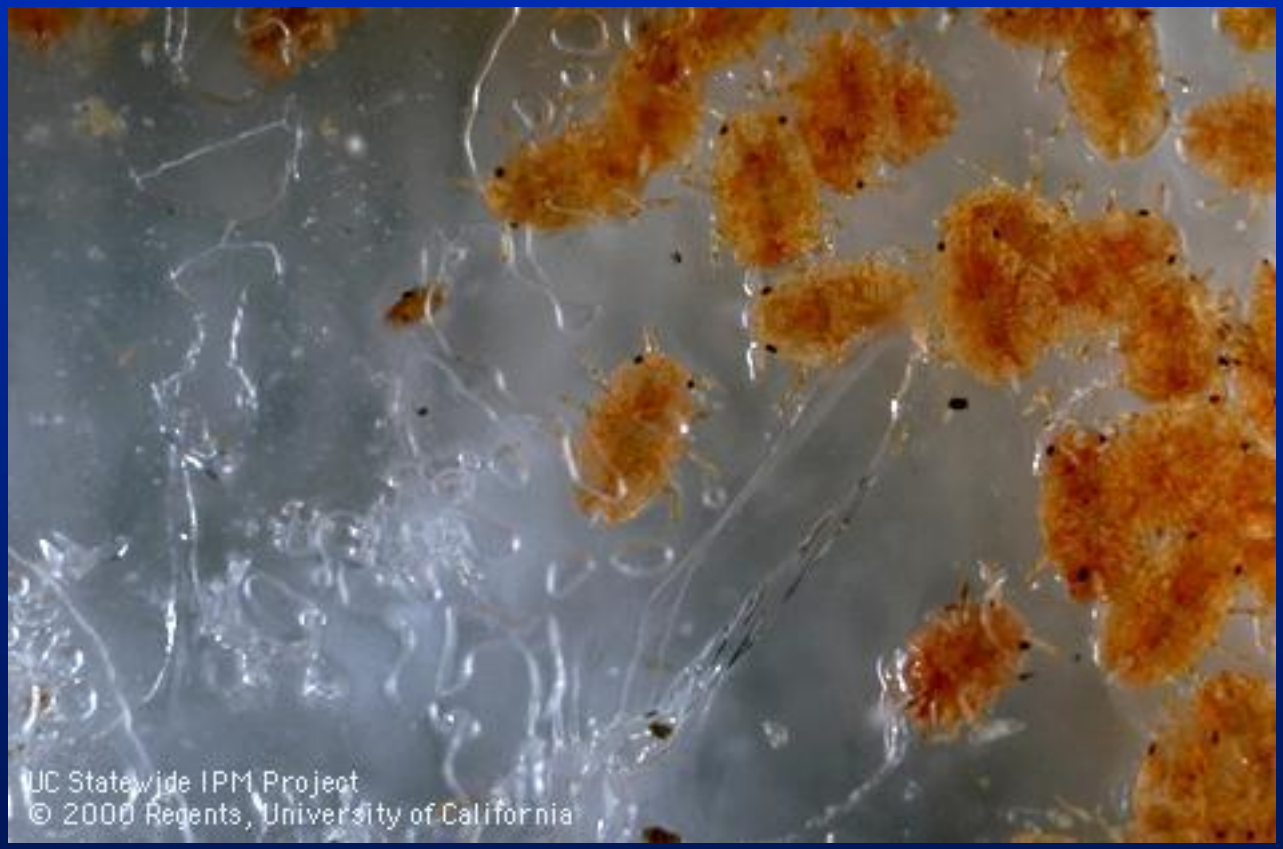


https://ifasbooks.ifas.ufl.edu/p-1833-commercial-ornamental-nursery-scouting-manual.aspx

Monitoring for Scale Insect Crawlers Using Double-sided Sticky Tape

Photographs courtesy of University of California Statewide IPM Program

Double Sided Tape Trap

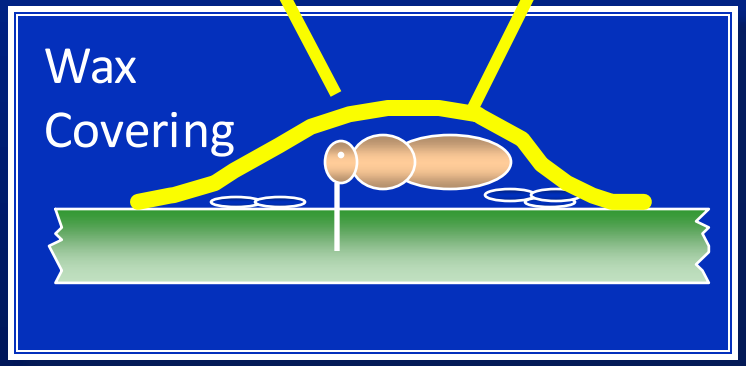


IDENTIFICATION

Scales and Mealybugs

Armored Scale

Soft Scale



Mealybugs

White powdery or cottony, wax-like mass

Manni

Damage
Soft Scales and Mealybugs

- Feed on phloem sap
- Produce honeydew which is usually the first signs of feeding.
- General decline; unhealthy looking plant, less growth
- Environmental stress from excess or lack of water, high temperatures, etc. may intensify scale feeding injury

Soft Scales

Flip the scale over. With a soft scale you won’t see the insect

Hard Scales

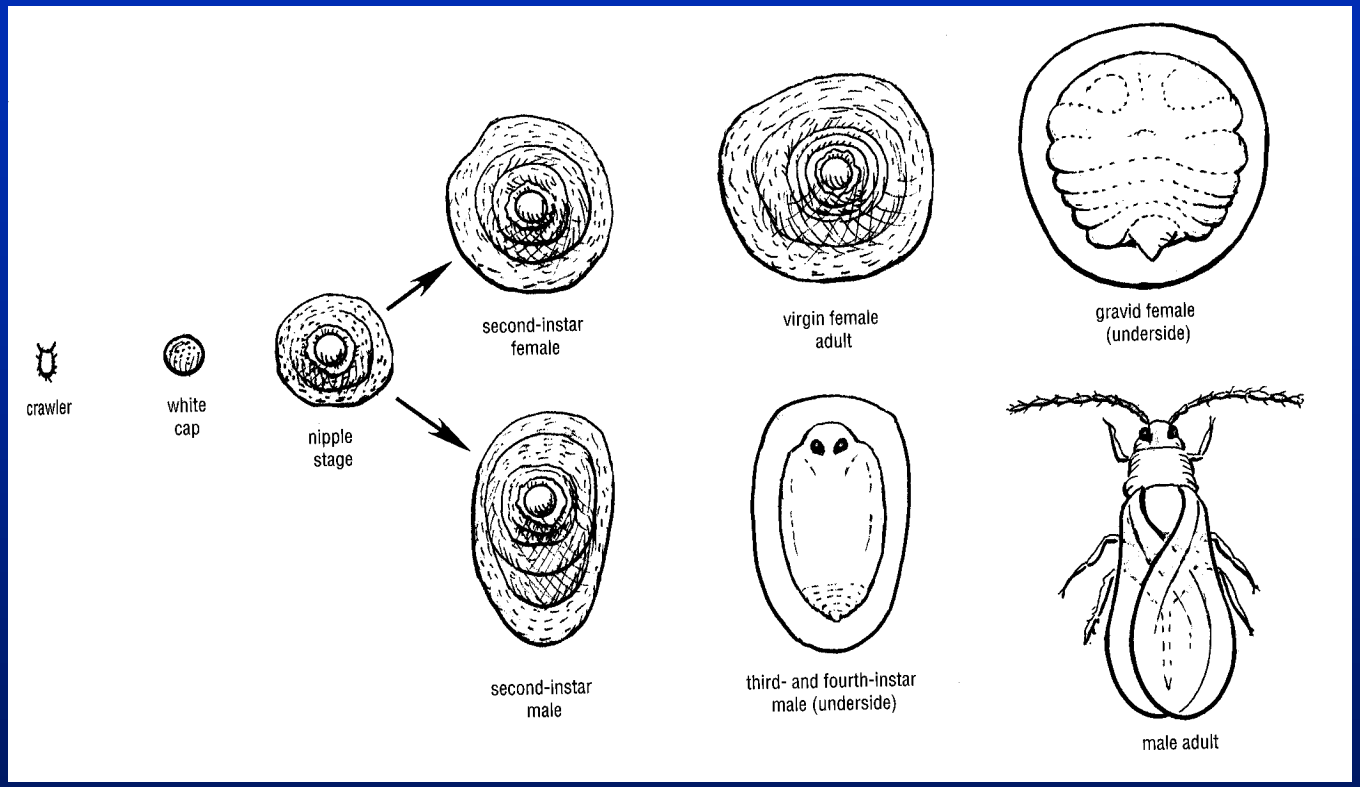

crawler
white cap
nipple stage
second-instar female
second-instar male
virgin female adult
third- and fourth-instar male (underside)
gravid female (underside)
male adult

Fig. 115

Fig. 116

Armored Scales

- Armored scale insects usually feed on parenchymal cells or vascular bundle tissues. Different than mealybugs and soft scales.
- Do not produce honeydew.

DAMAGE

Yellowing of the leaves

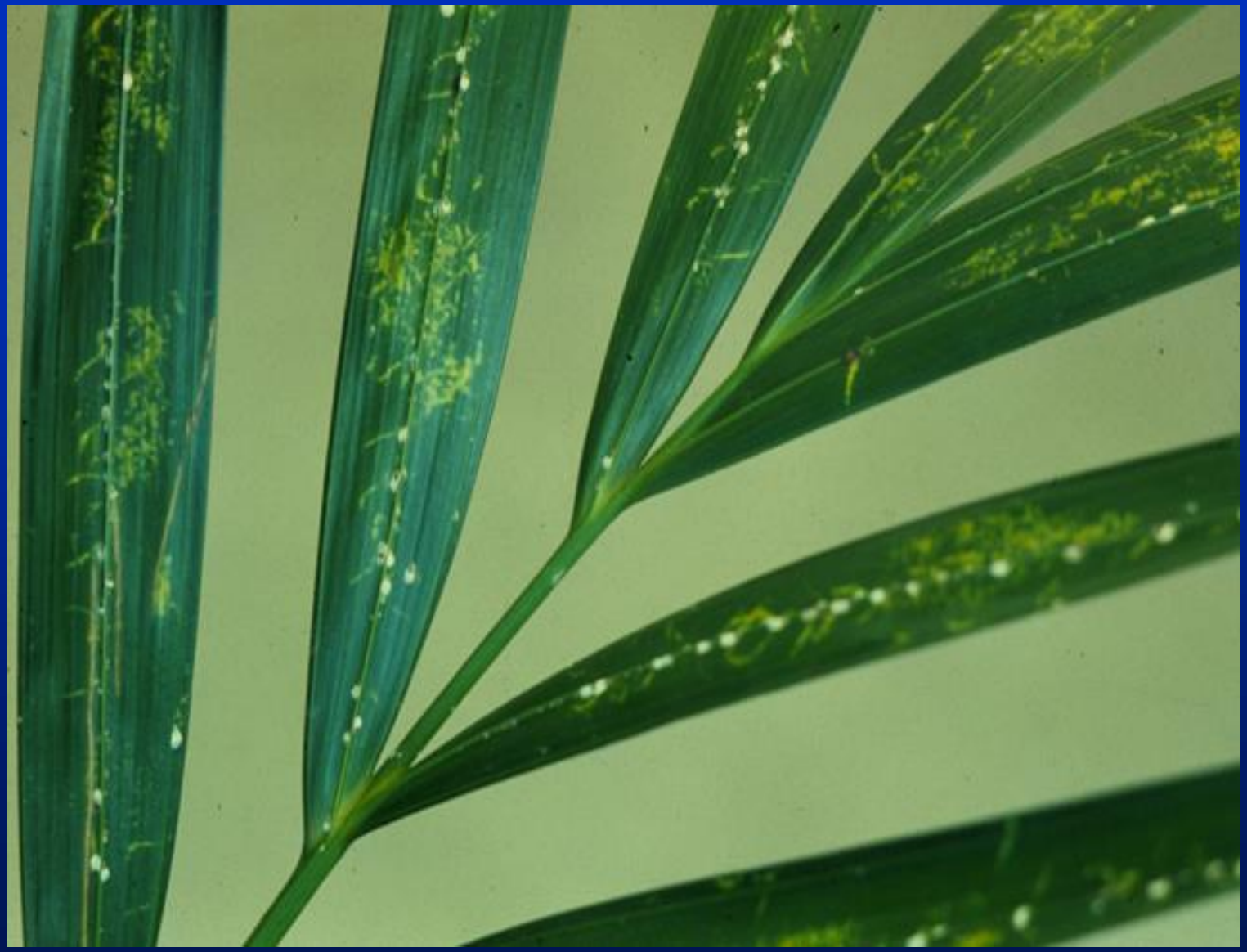
Leaf drop

Discoloration at the feeding site

Aesthetic damage by the presence of the scales

Loss of plant vigor

Stunting of the host and even death



Hard to tell if alive or dead!

Shotgun Fungus

Not a scale. Flip the it over and you won’t see anything.

Management

Chemical

PESTISIDE

DISCLAIMER

Mention of a trademark or proprietary product does not constitute a guarantee or warranty of the product by the University of Florida or United States Department of Agriculture and does not imply its approval to the exclusion of other products that may also be suitable. **All pesticides must be applied in strict accordance with their labels. Pay close attention to pollinator safety guidelines, legal use sites, rates and methods of application.**

DIFFICULT TO GET COVERAGE

Difficult to contact infested foliage because of location.

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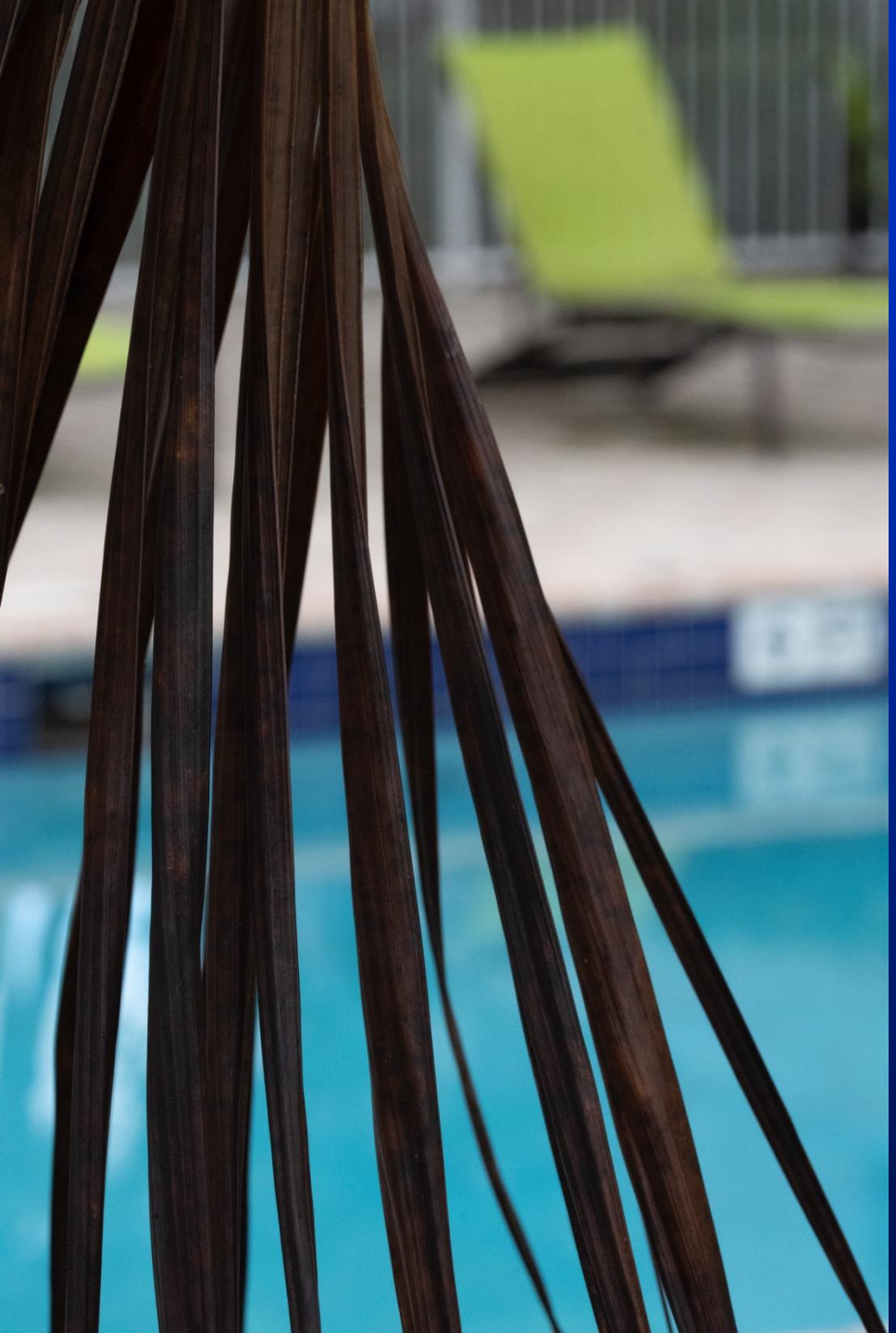


Difficult to contact infested foliage because of location.

Difficult to spray and not impact other plants. Fear of causing phytotoxicity.

Difficult to spray and not impact other plants. Fear of causing phytotoxicity.

Why are they hard to KILL?

Their susceptibility to insecticides is further decreased because it is a pupillarial species: adult females are encased within the second-instar shed skin.

Why are they hard to KILL?

Protected by:

- Covered by other scales,
- Where they live,
- Covered by their two layers of cast skins.
- And finally, they are covered by their own adult skin.

Management

Chemical Control

Dr. Cristi Palmer (2023)

Management Guide

Table 1 Potential insecticides against the phantasma scale in Florida.

Trade Names (Manufacturer)	Active Ingredient(s)	MoA Class	Application Type	Label Rate (Landscape Ornamentals)	Minimum Application Interval (Days)
I. Efficacy values > 80% & legal to use on landscape ornamentals					
TriStar 8.5SL (Cleary)	Acetamiprid	4A	F	8.5–16.5 oz/100 gals	7
TriStar 70WSP (Cleary)	Acetamiprid	4A	F	2.0–4.0 water soluble packs/100 gals	7
Safari 20SG (Valent)	Dinotefuran	4A	F, D	4.0–8.0 oz/100 gals (F) 2.1–4.2 oz/10 DBH (D)	14–21 (F) 7(D)*
Safari 2G (Valent)	Dinotefuran	4A	D	2.0–4.0 oz/10 DBH (D)	**
Altus (Bayer)	Flupyradifurone	4D	F, D	10.5–14.0 fl oz/A (F) 21.0–28.0 fl oz/A (D)	7 (F) 365 (D)
Distance (Valent)	Pyriproxyfen	7C	F, D	8.0–12.0 fl oz/100 gals (F)	14–28
Ventigra (BASF)	Afidopyropen	9D	F	4.8–7.0 fl ozs/100 gals	7
Talus 70DF (SePRO)	Buprofezin	16	F	14.0 oz/A	***
Mainspring GNL (Syngenta)	Cyantraniliprole	28	F	2.0 8.0 fl oz /100 gal (F) 0.1250.25 fl oz/DBH (D)	7–14 (F) **** (D)
AzaGuard (BioSafe)	Azadirachtin	UN	F	10-15 fl oz/A	7–10
SuffOil-X (OMRI)	Mineral Oil	UNM	F	1.0–2.0 gals/100 gals	As Needed
Ultra-Pure Oil (BASF)	Mineral Oil	UNM	F	0.5–1.0 gals/100 gals	10–14#
Safe-T-Side (Monterey)	Petroleum Oil	UNM	F	2.5–5.0 tablespoons/gal	As Needed
II. Efficacy values >80% & NOT legal to use on landscape ornamentals but possibly legal to use in commercial nurseries					
Xxpire (Corteva)	Spinetoram + Sulfoxaflor	4c, 5	F	3.5 oz/100 gals (F)	14
Kontos (OHP)	Spirotetramat	23	D, F	1.7–3.4 fl oz/100 gals (F)	14-28 (F)
Sarisa (OHP)	Cyclaniliprole	28	F	16.4–27.0 fl oz/100 gals (F)	7*****

Be Aware:

- systemic insecticides can provide variable or sporadic control,
- poor timing of contact insecticide applications can also lead to little or no control,
- insecticide applications can disrupt the conservation of resident natural enemies, and
- incomplete coverage of contact insecticide applications can lead to *F. phantasma* proliferation.

Be Aware:

- A resurgence of armored scale populations can also occur due to reinfestations of sprayed foliage by crawlers from nearby trees.

- Crawlers can spread by wind, on contaminated equipment and animals (including people).

Oils

- Oils are an important tool if you are trying to conserve natural enemies because they are primarily contact insecticides.
- If used properly they are safe.
- Phytotoxicity has been a major concern, but a few large landscape management companies report little impact when using oils.
- Follow labeled instructions, test for phyto on understory plants, cover areas you don't want treated.

Management

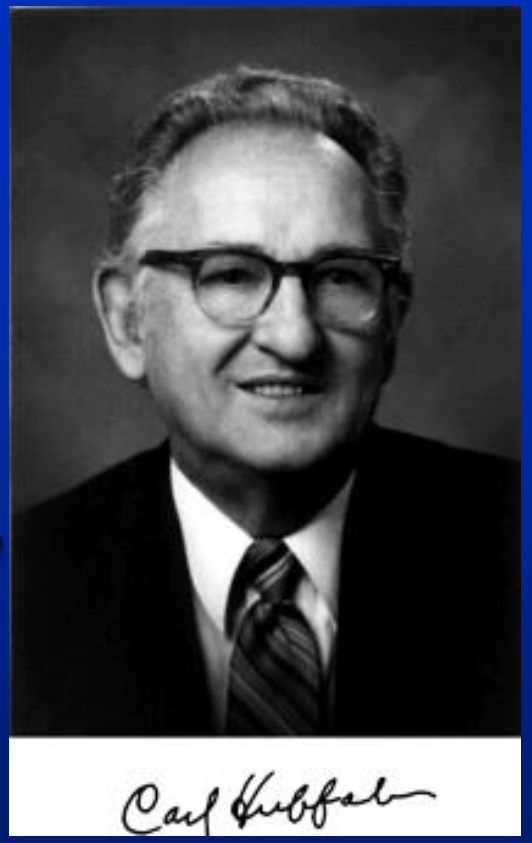
Chemical Control

Is it sustainable?

Management

Biological

“When we kill off the natural enemies of a pest we inherit their work”



Carl B. Huffaker

Natural enemies were found on every species of palm and in every county.

Scale picnic beetle

Predatory Mites

Cecidomyiidae Fly Larvae

Aphelinidae Parasitoids

Roda

Other commonly found natural enemies.

Roda

Questions I would ask myself!

1. Evaluate! Is the tree unsightly? Consult an arborist to see if the damaged and infested material can be removed.
2. What percentage of the scales are alive on the remaining fronds or leaves? Sometimes a large portion are dead from a previous treatment, biological controls, or some other factor.
3. Are biological controls present on the remaining plant material?
4. Decide, does the infestation appear to be getting worse, is it stable, or declining? Try to monitor the same area over time.

Questions I would ask myself!

5. Can it be left alone until another evaluation is made?
6. If not, do you want to nuke?
7. Do you want to treat with softer chemicals like oil, Distance or Talis to conserve natural enemies. If yes, DON'T use a pyrethroid!!!
8. Do you see many crawlers and eggs? Best time to apply! If you are going to use a systemic, is the plant actively growing and moving fluids?
9. Re-evaluate

What's Needed?

A way to determine or predict when crawlers are present!

More precise knowledge of how to use pesticides on palms.

Efficient Biological Controls.

Determining drivers of phantasma scale density and distribution in Florida landscapes






Minor V. Solano Gutiérrez, Lillian J. Shoemaker, Ryan Klein, Erin Powell, Michael Orfanedes, Henrique Mayer, Adam G. Dale

UF UNIVERSITY of FLORIDA

FNGLA FLORIDA NURSERY, GROWERS AND LANDSCAPE ASSOCIATION
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Overarching goals

1. Determine the primary factors facilitating phantasma scale invasion and success
2. Develop planting recommendations to guide urban landscape plant selection and landscape design with reduced scale pressure
3. Identify management strategies to effectively suppress phantasma scale densities

WEB SITE

Search for

Phantasma Scale Osborne

QTScaleInsects.pdf Cranshaw

Thank you!

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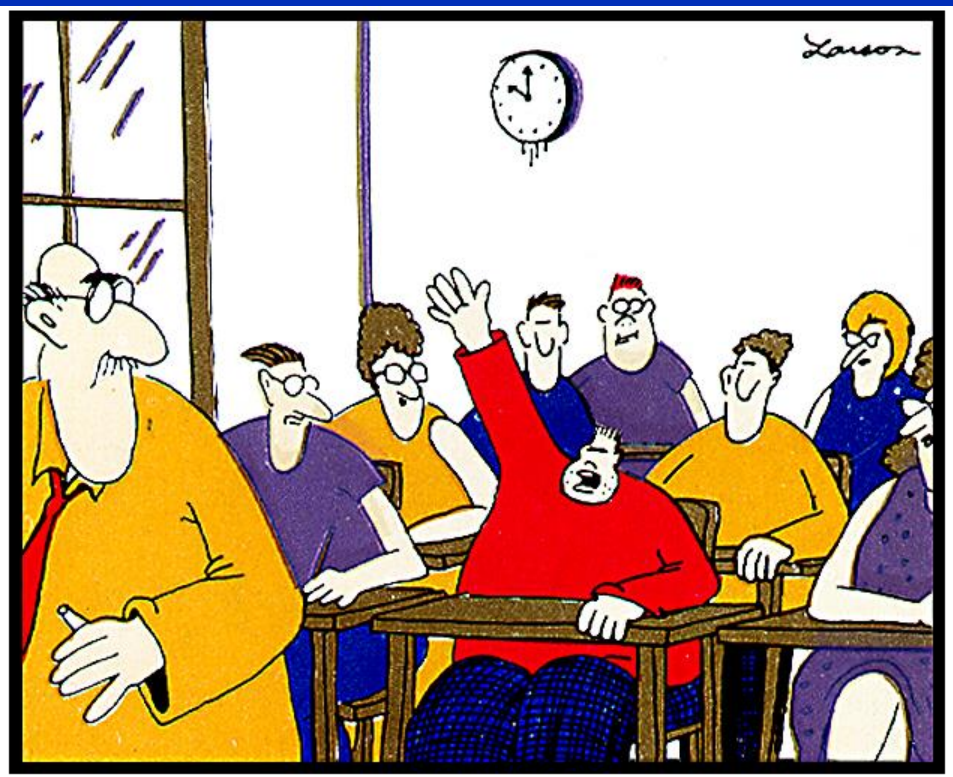

"Mr. Osborne, may I be excused?
My brain is full."

IR-4 2009

Hesselein evaluated Safari on tea scale infesting dwarf Burford holly (Ilex cornuta)' Burfordii 'Nana' in a commercial landscape. Both Safari 20SG drench and 2G soil treatment significantly increased mortality of female tea scale (Table 45). Ludwig evaluated efficacy of Safari, Talus and Triact on tea scale (Fiorinia theae) infesting Japanese camellia (Camellia japonica) grown in containers. Safari drench was the only treatment that resulted in significantly higher mortality 32 and 68 days after treatment (Table 46). Sixty-eight days after the Safari 20SG treatment was applied, 100% of the female scales were dead.

IR-4

2010

In 2010, Frank evaluated Kontos, Safari and Talus on tea scale infesting Japanese camellia (Camellia japonica) grown in containers. Scale abundance was significantly less than the Nontreated control in all treatments by 7 DAT (Table 47). Differences persisted through the experiment to the last sample date 70 DAT

IR-4

2014

In 2014, Chen conducted an experiment examining efficacy of various insecticides on tea scale on sasanqua (Camellia sasanqua) ‘Mountain Snow’. All treatments, including the standard SuffOil-X, provided good to excellent control of a moderate to high infestation within 60 days after the second application (Table 48). XXpire at 3.5 oz per 100 gal provided the best control.

IR-4 2014

Arthurs evaluated the efficacy of various insecticides applied in the spring against crawler stages of tea scale infesting Japanese camellia (C. japonica) 'In the Pink'. All treatments provided excellent control of tea scale during the experiment (Table 49, Table 50). XXpire, Distance, SuffOil-X and Safari, eliminated (or came close to eliminating) the scale infestation, whereas some residual scale infestation remained in the Mainspring and Talus treatments at the end of the experiment, providing the likelihood for scale reestablishment in the following year.

MY WEB SITE

- Field Detection and Potential Host Plants of *Fiorinia phantasma* Cockerell & Robinson (Diaspididae: Hemiptera), Phantasma Scale, Potential Pest of Palms and Ornamental Plants in Florida
- Chemical Control of the Phantasma Scale, Fiorinia phantasma (Hemiptera: Diaspididae), Potential Pest of Palms and Ornamentals Plants in Florida
- PEST ALERT
- Field Report and Survey of Fiorinia phantasma (Hemiptera: Diaspididae), Potential Pest of Palms, and Ornamental Plants in the United States.
- This is a large PowerPoint file so it takes a long time to download.

- https://mrec.ifas.ufl.edu/lso/phantasma/pdf/Phantasma-final.pdf
- https://mrec.ifas.ufl.edu/lso/phantasma/pdf/Phantasma-final.pptx