

Commercial Clippings

July - September 2017

Scale Insect Management

Scale insects are one of the most ubiquitous and difficult to control insect pests of landscape plants. For this reason, the UF/IFAS EDIS article, ENY-323, was recently published to provide up-to-date management recommendations.

Scale insects are small, inconspicuous insects that extract plant sap from leaves or branches and secrete a protective waxy covering. Scale insects can be generally divided into two main categories: armored and soft. Armored scales are the most diverse group in Florida with over 130 species, while there are over 40 reported soft scale insects in Florida. Distinguishing between the two is important because their biology and management can differ. Key differences are outlined in Table 1 on page 7.



Dr. Adam Dale
UF/IFAS Department of
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In low numbers, scale insects are rarely damaging. Unfortunately, due to their small size and inconspicuous behavior, they frequently go unnoticed on plants until they reach high numbers. They damage plants by feeding on sap and cell contents, which contain sugars and nutrients. This reduces plant growth and results in yellowing leaves, premature leaf drop, branch dieback, or gradual plant death. Soft scale honeydew excretions lead to sooty mold growth, which can turn plant surfaces black and reduce growth. Scale insects commonly outbreak on stressed plants and can be very difficult to control once a population has reached high numbers. Therefore, proper cultural practices are key to effective preventive management.

I have boiled things down to four key steps for effective scale insect control:

1. Use proper cultural practices to reduce plant stress and promote plant defenses against pests.
2. If live scale insects are detected, determine if it is an armored or soft scale species.
3. Once identified, monitor for crawler emergence to determine when to make an insecticide application.
4. Use systemic or translaminar



Wax scale-infested holly shrub with extensive sooty mold growth. Credits: A.G. Dale

insecticides to control scale insects on contact and during feeding. These should be used in rotation with horticultural oils or soaps to increase control.

Continued on page 5



<http://duval.ifas.ufl.edu>



SUMMER WORKSHOPS

2017

July 5
August 2
September 6
Wednesday
(Duval)

Pesticide Testing - Agricultural, Limited, Certified Pest Operator and Public Health Exams

9:15 am

Pre-register at <https://aesecomm.freshfromflorida.com> for all exams. For assistance with exam registration please call 904-255-7450 or email Sarah Freeman at sfreeman@coj.net. No walk-ins.

July 18
Tuesday
(Clay)

Limited Commercial Landscape Maintenance Exam Preparation Workshop For NEW Applicators

8:15 am - 2:30 pm
\$30.00 pre-registered; \$40 at the door

August 10
Thursday
(Putnam)

Lunch included, textbooks not included
The exam is administered at 3:00 pm. Please register for the exam at <https://aesecomm.freshfromflorida.com> prior to coming to class.

September 21
Thursday
(Duval)

This class is designed for people who do not have their license yet. If you are re-certifying your LCLM or LL&O you should consider attending a different class that offers those CEUs. There are many to choose from throughout the year.

3 LCLM
3 LLO
3 O&T
3 L&O
3 PVT
3 CORE (482)

Clay - (904) 284-6355 or <https://www.eventbrite.com/e/limited-commercial-lawn-and-landscape-workshop-7182017-tickets-34732129735>

Putnam - (386) 329-0318

Duval - <http://www.duvalextension.eventbrite.com>

July 21
Friday
(Ewing Irrigation - Duval)

Turf Talks Around Town: Webworms and Armyworms

Sponsored by



8:00 am - 9:00 am
\$15 per person; limited seating
Class Location: 11590 Davis Creek Ct | Jacksonville, FL 32256

CEUs available

In-depth information on identification of webworms and armyworms and damage. Also gain insight on new treatment strategies.

Pre-registration required: https://turf_caterpillars_july2017.eventbrite.com

July 27
Thursday
(Jay)

Gulf Coast Turfgrass & Field Day

At UF's West Florida Research and Education Center
7:00 am - 3:30 pm CENTRAL Time
\$50 for attendees

CEUs available

Registration: <https://www.eventbrite.com/e/2017-gulf-coast-turfgrass-expo-field-day-rescheduled-tickets-33621541937>

Register for Workshops at <http://www.duvalextension.eventbrite.com>

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All classes require pre-registration

Unless stated classes will be held at the Duval County Extension Office, 1010 N McDuff Ave, Jacksonville, FL 32254

July 25
Tuesday
(St Augustine)

September 14
Thursday
(Duval)

4 LA
4 FNGLA
2 LCLM
2 CORE
2 L&O
2 LL&O
2 Pvt

Green Industries Best Management Practices for the Protection of Water Resources

8:15 am - 3:30 pm, Lunch provided
\$25 pre-registration; \$35 at the door

This class is the pre-requisite for the State of Florida's Urban Fertilizer License. It is also a great class for people who are entering the industry.

Registration:

Duval - <http://www.duvalextension.eventbrite.com>

St Augustine - <https://www.eventbrite.com/e/green-industries-bmps-gibmps-tickets-35709207200>

September 12
Tuesday
(Palm Beach)

September 13
Wednesday
(Ft. Meyers)

1 LUF
6 L&O
6 O&T
6 LCLM
6 ROW
6 PVT

Evidence-Based Zoysiagrass Management Workshops

9:00 am - 4:00 pm

\$60 pre-registration; \$75 at the door

Join us for an advanced workshop on zoysiagrass management. You will gain insight into research, tools, and evidence-based practices from UF's Turf Team. This is a class you don't want to miss!

Registration and Agendas:

Palm Beach - http://uf_zoysiagrass_westpalmbeach.eventbrite.com

Fort Myers - http://uf_zoysiagrass_fortmyers.eventbrite.com

August 11
(Friday)
(Duval)

ROW and Natl Area
CEUs applied for

Right-of-Way and Natural Areas Pesticide Exam Review

8:30 am - 2:00 pm
\$40; \$60 at the door; lunch and snacks provided

This is a REVIEW class for the Right-of-Way and Natural Areas Restricted-Use Pesticide Exams. Attendees are expected to study prior to coming to class and attending this workshop does not guarantee that an applicant will pass their exam. They will have the opportunity to take the General Standards CORE and their category exam at the end of the review.

Register at https://row_natlareas_review_2017july.eventbrite.com

Utilizing Resistance Action Committee Numbers Maintains an Effective IPM Toolbox

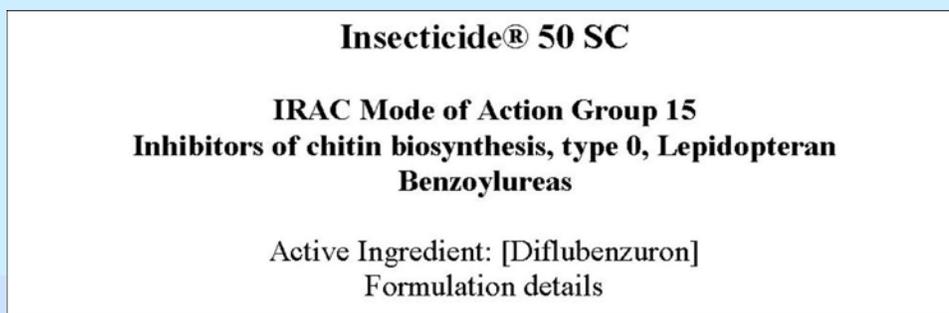
Managing pesticide resistance in an insect or fungus population is crucial to the long term success of your crops. Using the same pesticide repeatedly on the same pest, crop and site will greatly increase the chance of the pest populations developing resistance to the treatment. To preserve a pesticide's effectiveness and keep resistance at bay, simply rotating active ingredients of pesticides at each application is not enough.



Brooke Moffis
UF/IFAS Extension, Lake County

To effectively manage a pest problem long-term with pesticides, you must consider and rotate the mode of action when selecting treatments. The mode of action can be described as the way a chemical works to reach its goal. For example, pyrethrins work on the sodium channels in cells acting as a neurotoxin, methoprene mimics an insect's juvenile hormone causing the treated pest to enter a state of arrested development where it cannot mature into a reproductive adult, and b.t. kurstaki causes the insect's midgut membranes to tear. Each of these mode of actions controls the insect's biology and lifecycle differently and rotating pesticide products with different modes will greatly reduce the chance of resistance.

How does one know a pesticide's mode of action? Look for the Insecticide Resistance Action Committee (IRAC) or Fungicide Resistance Action Committee (FRAC) number on the pesticide label. Active ingredients of insecticides and fungicides are assigned a number depending on their mode of action. All pyrethrins for instance are assigned the number three indicating that pyrethrins are sodium channel modulators. Thankfully we don't have to know what a sodium channel modulator is or remember the way a pesticide works, we just have to be able to find the numbers on the pesticide label or read the IRAC chart to select pesticides with different modes of action before making purchases. IRAC numbers are currently not required to be displayed on a pesticide's label, but it is encouraged and more manufacturers are placing RAC numbers on labels as pesticides are registered. *(Continued on pg 5)*



An example of a pesticide label box containing an IRAC number and mode of action
Photo credit: Fredrick M. Fischel, UF/IFAS

Continued from pg 4, **Utilizing Resistance Action Committee Numbers**

When managing pesticide resistance we are trying to expose each generation of an insect to a different mode of action minimizing the risk for resistance to breed into the population. Every time you treat, it is extremely rare that you will kill one hundred percent of the population. There will always be some individuals left that have now been exposed and survived the pesticide treatment. These individuals may be able to metabolize the insecticide and now that the rest of the population has been knocked down, the survivors will breed and feed with limited competition spreading their resistance genes to the next generation.

Resistance can quickly breed into a population and it can also breed out. If you suspect an insect or fungus pest is resistant to your treatments, stop spraying pesticides with that mode of action. The number of resistant individuals will typically decrease once the pressure from the pesticide's mode of action is no longer present. However, since resistant individuals have already been selected for in the past, resistance can breed back into a population faster than it developed initially when a pesticide with the same mode of action is routinely used again.

Using IRAC and FRAC mode of action numbers to plan your pesticide treatments will increase the longevity of a chemical's effectiveness and can help maintain the pesticide as a crucial tool in your integrated pest management tool box.

For more information on IRAC please visit <http://www.irac-online.org/>. To access the University of Florida's publication, IRAC's Insecticide Mode of Action Classification please visit <http://edis.ifas.ufl.edu/pi121>.

Brooke Moffis is the Residential Horticulture Agent of the UF/IFAS Lake County Extension office.

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A huge **THANK YOU** to our scholarship donors:
Florida Nursery, Growers, and Landscape Association
Northeast Chapter, Peninsular Pest Services, Trads, and
Sunscapes Landscape Design

Insectpedition a 4-H Bug Camp

For Youth Ages 11-18

Dates: July 24-27, 2017

Cost: \$75, scholarships available

Time: 8:30-4:30 pm; drop-off 8-8:30; pick-up 4-5

Location: Meet at the Extension Office with daily field trips

Students will receive insect collecting equipment, learn how to collect, preserve, and create their own collections. Field trips to Gainesville, aquatic collecting, and more!

Limited scholarships are available. Students need to submit an essay on "why insects are important in their lives" (up to 500 words) to Erin Harlow at eeeck@ufl.edu for consideration. Scholarship recipients will be asked to attend a meeting of the donors choosing with UF faculty to present their collections.

Are You Drowning Yet?

What to Expect in the Landscape with All this Rain and Heat

By Erin Harlow

Thank goodness it started raining! But now everything is under water or was and now is stressed from the heat. As a result, new pest and disease issues have arisen. Let's take a quick look at what you should expect over the next few months.

With splashing rains comes more chance for diseases to spread. As a result, leaf spots are prevalent right now. We are seeing lots of gray leaf spot on St. Augustinegrass and bipolaris/helminthosporium on Zoysia and St. Augustinegrasses (<https://edis.ifas.ufl.edu/lh048>).

You may find that locations you managed previously with no problems are now holding water and the turf is struggling. In areas with poor drainage, root rots may be a serious problem for you. Pythium root rot is causing a lot of problems at the moment and I expect to continue to see Pythium root rot throughout the summer. As it becomes drier and hotter, you may find that grass that suffered from root rot may struggle more. The turf now has no roots, the irrigation has usually been turned off, and the area dries out extremely fast from the afternoon sun. Focusing on root development will benefit you the most using

potassium and

phosphorous . If you are seeing signs of disease

stress then preventative fungicide applications are recommended.

Depending on the severity of the problem, you may need several fungicide applications. Follow the label and make sure the disease present is on the label and so is your site once. Remember, with fungicides, you normally are not curing the disease, just preventing it from spreading and allowing the turf time to recover. For more information on Pythium, please visit UF's publication at <https://edis.ifas.ufl.edu/lh050>.

To send in a sample for disease diagnosis visit UF's Plant Diagnostic Clinic at <http://plantpath.ifas.ufl.edu/extension/plant-diagnostic-center/>.



Standing water in a zoysiagrass field.

Photo: Erin Harlow, UF/IFAS



Checking the soil moisture with a TDR Meter.

Photo: George Richardson IV, UF/IFAS

Scale Insect Management

Table 1. Key Differences between soft and armored scales.

Soft Scale	Armored Scale
1. Does not produce an armored cover	1. Produces an armored cover separate from its body
2. Produces honeydew	2. Does not produce honeydew
3. Associated with black sooty mold fungus	3. Not associated with black sooty mold fungus
4. More than one mobile female life stage	4. Females are only mobile as first instar nymphs (crawlers)

When scale insects outbreak, we rely on insecticides to rescue plants. Fortunately, we have multiple products that can effectively reduce scale insect populations. Some key points regarding insecticide control of scale insects are listed below.

Imidacloprid effectively controls soft scales, but not armored scales.

Less commonly used products like pyriproxyfen and buprofezin (translaminar insect growth regulators) can provide effective control.

Thorough coverage is critical, multiple applications may be needed over time, and results may not be apparent for several months if infestations are large.

Controlling scale insects is often expensive and can take several months to see results. When plants are heavily infested, consider costs and benefits of treatment compared to plant replacement with a different species. Visit, <http://edis.ifas.ufl.edu/mg005>, for detailed information and management recommendations for scale insects on ornamental plants.

Dr. Adam Dale is an Assistant Professor specializing in insect and turf entomology at the University of Florida's Department of Entomology and Nematology in Gainesville. Email at agdale@ufl.edu



False oleander scale, *Pseudaulacaspis cockerelli*, on southern magnolia leaves.

Credits: A.G. Dale

UF/IFAS Evidence-Based Turf Management Short Course Pest Management

September 6-7, 2017, 7:45 am - 5:00 pm
UF Campus, 1306 Fifield Hall, Gainesville, FL 32611
\$500
<http://turfschoolpests.eventbrite.com>



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For individuals requiring special accommodations, please contact our office (904/255-7450) within a minimum of 5 working days of the program. For persons with hearing or speech impairments, when contacting our office, please use the Florida Relay Service at 1-800-955-8771 (TDD). Your comments and input are necessary for this to be a useful tool for all of us.

Extension Programs are open to all regardless of race, creed, color, sex, sexual orientation, marital status, age, disability, religion, national origin, political opinions or affiliations.

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