

# Scale Insects and Mealybugs - in the Turf?

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Scale insects are ubiquitous on landscape plants. There are over 200 species in Florida including armored scales, soft scales, mealybugs, and several other less common groups. Nearly everyone who has maintained landscape plants has encountered scale insects during their career, and I'm sure many have battled them with mixed success.

Whenever I mention scale insects or mealybugs to landscape professionals, everyone thinks of ornamental plant pests – cottony cushion scale on pittosporum, tea scale on camellias, or Florida wax scale on hollies, among others. However, this is not always the case. As many pest management professionals have discovered, scale insects and mealybugs can also be damaging and difficult to control in turfgrass.

## Who are the culprits?

There are at least five species of scale insects that are damaging pests of warm season turfgrasses in the southeastern U.S. These include rhodesgrass mealybug (*Antonina graminis*), Tuttle mealybug (*Brevinnia rehi*), bermudagrass scale (*Odonaspis ruthae*), *Duplachionaspis divergens*, and ground pearls (*Dimargarodes meridionalis*).

These sedentary, sap-feeding insects insert their hair-like mouthparts into plant tissue and extract vascular fluids or cell contents. Since they are fairly immobile, they tend to spend multiple generations in the same location or host plant. Since many of these insects do not fly, most scale insects and mealybugs disperse by wind. Research has also shown that scale insects disperse phoretically (by hitching a ride on other surfaces or organisms) or by the movement of infested plant material.

## The most problematic species

Most of these insects are only occasional pests. However, two species are reported most often in Florida. These are the Tuttle mealybug, *Brevinnia rehi*, and bermudagrass scale, *Odonaspis ruthae*.

Tuttle mealybug is globally distributed, but was first documented in Florida in 1975 in Pompano Beach. Until recently, this pest was only found in southern Florida with one report as far north as Orange County in 2012. In 2016, I received Tuttle mealybug specimens from previously undetected parts of Florida, including Duval (northeast) and Walton Counties (northwest), as well as multiple cases from counties with previously reported infestations. Tuttle mealybug is primarily a pest of zoysiagrass, although it is occasionally found damaging bermudagrass.

Bermudagrass scale is globally distributed and found throughout the southern U.S. As the name suggests, this insect is most commonly found on bermudagrass, although it does infest several other grasses including St. Augustinegrass.

## Are they a problem?

Scale insects and mealybugs cause similar damage in turf and ornamental systems. Plant material turns yellow, brown, and gradu-

ally dies. Reduced plant quality and vigor translates to unattractive lawns and reduced environmental benefits. Heavily infested areas require intervention and open the door for other pest problems like weeds and diseases.

Turfgrass scale insects and mealybugs were one of the most common pest management issues that I was contacted about in 2016. The management challenge was two-fold:

- 1) He or she did not know what the pest was and/or,
- 2) He or she was having difficulty controlling it.

Both issues stem from that, as an industry, we generally have little experience managing scale insects in turfgrass. Sure, we regularly manage scale insects on ornamental plants. However, management strategies do not translate as seamlessly to turfgrass as expected.

## Why these insects are difficult to control

Scale insects are one of the most difficult pests to manage in the landscape. This is largely because they are very small, have protective coverings, and live in tight places that are difficult to reach. These insects also take advantage of environmental conditions or disturbances that favor their success. My research has found that scale insects often thrive in landscapes where conditions are generally warmer and plants are under more stress. Therefore, insects in those habitats produce more offspring, build up populations faster, and cause more plant damage.

Thorough coverage with insecticides is critical for controlling these insects, but also difficult due to the nooks and crannies they live in. Therefore, contacting each individual in a population is unlikely. This often translates to more frequent or wall-to-wall applications of broad-spectrum insecticides, a practice known to cause secondary pest outbreaks.

## What are secondary pests?

The most common secondary pests of landscape plants are aphids, spider mites, and scale insects. Secondary pests exist in the landscape below damaging levels, but increase rapidly following the application of broad-spectrum, non-selective insecticides applied targeting another pest. These products (e.g., pyrethroids, carbamates) are toxic to all exposed insects, both pest and beneficial. Scale insects and mealybugs that survive can reproduce without being hunted and eaten. Research shows that using selective products when possible, and spot-treating infestations will reduce toxicity to beneficial insects and increase natural pest control.



Adult female bermudagrass scales (*Odonaspis ruthae*) on bermudagrass stems.

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## What can we do?

Follow UF/IFAS-recommended cultural practices (irrigation, fertilization, and mowing) to promote a dense, healthy stand of turfgrass for the best defense against pest outbreaks.

Once scale insect or mealybug populations reach high levels, they are difficult to control and often take weeks or months to reduce below damaging levels. Although little research has investigated the best management strategies for these pests in



Tuttle mealybugs (*Brevinnia rehi*) and their characteristic white wax on Empire zoysiagrass.

turfgrass, tactics similar to those that work on ornamental plants should be implemented.

Scale insect and mealybug populations are most effectively reduced with thorough coverage of systemic insecticides or those that get into the plant tissue. Contact-toxic products are less effective

because they must contact the insect to work, which is difficult. In contrast, pests ingest systemic products while feeding on the plant. Many systemic products are also compatible with natural enemies, which allows biological control to occur between product applications.



Empire zoysiagrass lawn in Palm Beach, FL exhibiting severe Tuttle mealybug damage and turf dieback.

## Use IPM

Although most of these insects are only occasional pests, it is important to be aware of their presence in the landscape. The obscure nature of these insects makes it easy for them to exist undetected until they become a problem. Follow the IPM framework to scout for and identify pests, and utilize multiple management strategies to reduce risks associated with these pests and their damage.

**Dr. Adam Dale** can be reached by email at [agdale@ufl.edu](mailto:agdale@ufl.edu) or by phone at 352-273-2976. Resources that further explain content discussed here can be found at <http://edis.ifas.ufl.edu/in109>, <http://edis.ifas.ufl.edu/in1166>, or [dalelab.org](http://dalelab.org). All photos by Adam G. Dale.



Florida Farm Bureau News

## Mathis Named Environmental Horticulture Staff Liaison

The Florida Farm Bureau Federation recently named Jason Mathis an Assistant Director in the Agricultural Policy Division, with one of his duties being to serve as the staff liaison for the Environmental Horticulture Advisory Committee, which includes sod production. Mathis replaces Jaime Jerrells, who was named Director of the Agricultural Policy Division earlier this year.

A native of Archer, Mathis graduated from the University of Florida/IFAS with a degree in Agricultural Education and Communication. He joined Florida Farm Bureau in 2015 to direct the County Alliance for Responsible Environmental Stewardship (CARES), a recognition program highlighting the commitment of Florida's farmers and ranchers to environmental stewardship through implementation of Best Management Practices (BMPs).

Corey Lambert of Hardee County is chairing the Environmental Horticulture committee for 2017. Lambert manages Buckhorn Nursery, his family's third-generation plant production operation in Zolfo Springs. FFB's advisory committees meet twice yearly to discuss current issues and to review and make recommendations for policies that form the basis for Farm Bureau's activities on behalf of the state's many agricultural commodities. The next meeting of

the Environmental Horticulture Committee is set for August 29 in Apopka.

Sod representatives on this year's committee are Mike Pressley, Hendry/Glades, and Gary Bradshaw, Manatee. Other committee members for 2017 are Christy Savage-Griffin, Broward; Josh Craft, DeSoto/Charlotte; Harold Jones, Duval; Scott Kirouac, Highlands; William Womack, Hillsborough; Nicholas Morris, Indian River; Ralph Garrison, Manatee; Lee Nordman, Volusia. Technical Advisors are Ben Bolusky, FNGLA; Tyson Emery, FDACS-DPI; Dr. Kevin Kenworthy, UF/IFAS; Betsy McGill, Turfgrass Producers of Florida; Dr. Bryan Unruh, UF/IFAS; and Dr. Tom Yeager, UF/IFAS.

Committee members are nominated by their county Farm Bureau in late fall for a one year term commencing in January of the following year. If you're interested in serving on an advisory committee in 2018, contact your local county Farm Bureau for more information. If there is an issue related to sod production that you'd like brought to the committee's attention, you can contact Betsy McGill ([betsymcgill@floridaturf.com](mailto:betsymcgill@floridaturf.com)) or Jason Mathis ([jason.mathis@ffbf.org](mailto:jason.mathis@ffbf.org)).



Jason Mathis