

Santa Rosa County HortSense



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Front Page by Dan Mullins



Positive things are happening in the horticultural industry locally. Nurseries and garden centers appear to be busier than ever this spring. Gardeners are seeking out new introductions, ornamental grasses and tropical perennials as well as the standard spring bedding plants.

Open house at the new Santa Rosa County Extension office in Milton was held on April 3. One of the features of the building includes a laboratory that will enable us to better diagnose plant diseases and disorders for commercial and urban clientele.

An estimated 8,000 people attended the Emerald Coast Flower and Garden Festival during the weekend of April 5. The Festival was held at the PJC/University of

Florida campus in Milton. There were educational exhibits and 50 vendors offered many new and unusual plants.

The grand opening of the Riverwalk Market in Milton is scheduled for May 6 at noon. The organizational opening will be April 15. Though we don't expect large amounts of spring produce to be ready at that time, some items will be available. This should provide an additional marketing opportunity for local producers of vegetables, fruits, cut flowers and ornamentals.

There are currently several new pests of concern to the nursery industry. Daylily rust moved quickly into the area a year ago and is seriously damaging many daylily plantings. There are several web sites that provide information and control

recommendations for this disease. For one that is especially useful go to <http://www.aphis.usda.gov/npb/daylily.html>

Several insect pests have also arrived in the state recently. These include the Asian Cycad Scale, Lac Scale, Pink Hibiscus Mealybug and Aloe vera Aphid. Nurseries should scout frequently and be alert. Detailed information, including control recommendations can be found at the University of Florida's "Featured Creatures" website. Go to <http://creatures.ifas.ufl.edu/>

Daniel E. Mullins
Extension Agent -
Horticulture/Vegetables

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The use of trade names is solely for the purpose of providing specific information. It is not a guarantee, warranty, or endorsement of the product names.

Upcoming Events

- ◆ **Aquatic Weed Control Short Course 2003** May 19-22, 2003. Fort Lauderdale Marriott. Internet <http://www.conference.ifas.ufl.edu/aw/index.html>. Call (352) 392-5126
- ◆ **Florida Nurserymen & Growers Association Annual**

- Meeting.** June 12 to 15. Sonesta Beach Resort, Key Biscayne. Call (800) 375-3642. Internet www.fnga.org
- ◆ **Forestry and Natural Resources Field Day** - June 3, 2003. <http://wfrec.ifas.ufl.edu/WFREC/forestry/>

- forestry.htm. Call (850) 983-5216
- ◆ **Gulf Coast Turfgrass Expo & Field Day** - June 18, 2003 http://wfrec.ifas.ufl.edu/WFREC/turfgrass/turfexpo_03.htm. Call (850) 983-5216.

Pesticide Potpourri

◆ On February 13, FDACS sent a letter to the Florida Fruit and Vegetable Association to inform them that the EPA had granted a specific exemption for the use of Knack® (pyriproxyfen) insecticide (EPA Reg. # 59639-95) for control of silverleaf whitefly on legume vegetables (except soybean). The exemption went into effect on 2/7/03 and expires one year later. Product may be applied by ground or aerial application, at a rate of eight to ten ounces per acre. A maximum of two applications may be made, no sooner than 14 days apart. Do not exceed 20 ounces per acre per

season. The REI is 12 hours and the PHI is 7 days. A 60-foot buffer (ground application) or 300-foot buffer (aerial application) must be maintained around caverns, sinkholes, and surface waters within the defined recharge area for the Squirrel Chimney Cave Shrimp in Alachua County. (Source: *Chemically Speaking*, March 2003).

◆ DuPont has obtained a supplemental label [2(EE)] for use of Sinbar® (terbacil) herbicide for weed control in annual strawberry production systems under plastic mulch. The label only allows alfalfa,

apple, blueberry, mint, peach, or strawberry to be planted within the 12 months after the application, and there is a 110-day PHI. (Source: *Chemically Speaking* 3/2003).

◆ On January 14, FDACS sent a letter to Valent U.S.A. Corporation to inform them that the Department had accepted the Section 24(c) application for the use of Velocity® (bispyribac-sodium) herbicide (EPA Reg. # 59639-105) for control of annual bluegrass in bermudagrass fairways and tees overseeded with perennial ryegrass. (Source: *Chemically Speaking* 2/2003)

Nursery Notes

◆ Putting scent back into flowers is the goal of University of Florida environmental horticulture professor David Clark. Plant breeding has led to larger, longer-lasting flowers, but in the process many flowers have lost their scent. Clark has found that by making flowers less sensitive to ethylene, scent can be affected. The genes involved in producing scents are regulated by ethylene. Four thousand petunia genes have been cloned in an effort to identify which ones are responsible for making the chemicals that produce volatile compounds responsible for scent. Clark is also looking at application techniques for adding scents after flowers have bloomed. (Source: *GMPRO greEn-MAIL*, for Mar. 4, 2003)

◆ Scotts Co. defeated a U.S. EPA proposal that would have increased the

restricted-entry interval for thiophanate-methyl fungicides. The proposal called for a 72-hour REI for woody ornamentals, a 48-hour REI on herbaceous ornamentals and a 240-hour REI for cut flowers. Current thiophanate-methyl products with 12-hour REIs registered for nursery crops are Cleary's 3336, OHP 6672, Fungo Flo, SysTec 1998 and Banrot. Zyban is registered for nursery use and has a 24-hour REI. (Source: *Weekly NMPRO e-mail* for March 18, 2003)

◆ Fla. Dept. of Ag. and Consumer Services adopted a measure that could protect container growers from liability for groundwater contamination. Growers who participate in the voluntary measure must implement certain practices to protect groundwater and keep

records, but they receive a waiver of liability. The waiver was developed by members of the Florida nursery industry and protects growers from having to pay recovery costs associated with nitrate contamination. For more information visit <http://www.floridaagwaterpolicy.com> (Source: *Weekly NMPRO e-mail* for March 18, 2003)

◆ Skinner Nurseries, headquartered in Jacksonville, Fla., purchased Turkey Creek Farms, a 161-acre production facility in Humble, Texas, formerly owned by Calloway's Nursery Inc. Skinner plans to convert 10-15 acres of the facility into a landscape distribution center to service Houston-area landscape contractors. For more information visit <http://www.skinnernurseries.com> (Source: *Weekly NMPRO e-mail* for March 18, 2003)

Web Watch

The Florida Automated Weather Network (FAWN) at the Jay Research Farm provides up-to-date weather information through a system of automated weather stations distributed throughout the State of Florida. Research scientists at the University of Florida work closely with extension agents to monitor the FAWN system and make sure it provides fast, reliable,

and convenient access.

Overall, there are four parts to the FAWN system: collecting data, transmitting it to the collection site, processing the data, and redistributing it to the end user.

FAWN database servers maintained by IFAS Information Technologies receive weather data from remote stations every 15 minutes. The informa-

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

tion is processed and made available almost instantaneously through several different search methods accessible through the FAWN web server, as well as an interactive voice-response system. To learn more about FAWN, go to the FAWN weather data page at <http://fawn.ifas.ufl.edu>



Turf Tips

Broadleaf Herbicides for St. Augustinegrass Turf

By Philip Busey,

Turfgrass Weeds Research, Ft. Lauderdale Research & Education Center

Since the 1950s, atrazine has been the standard post emergence herbicide for broadleaf weed control in St. Augustinegrass turf. More recently, four new broadleaf herbicides have been labeled for the same purpose: Lontrel® (1999, Dow AgroSciences); Manor™ (2000, Riverdale Chemical Company); SpeedZone™ St. Augustine Formula, (2001, PBI Gordon Corporation); and Blade™ (2002 PBI Gordon Corporation). Unlike atrazine which is generally harmful to other grasses, Blade™, Lontrel®, Manor™, and SpeedZone™ St. Augustine Formula are also labeled for certain other warm-season turfgrasses.

Atrazine was adopted in the 1950s as the main post emergence herbicide for broadleaf weed control in St. Augustinegrass, after sod producers observed damage from phenoxy herbicides containing 2,4-D. After consulting with Dr. Evert O. Burt, Weed Scientist at the University of Florida, Ralph W. White, (Agricultural Extension Turf Specialist at the University of Florida) tested low rates of triazine herbicides for the control of broadleaf and grassy weeds. It was discovered from research that White did in Davie, Florida, that simazine and atrazine were effective for selective weed control in St. Augustinegrass. This was a major breakthrough for growers to produce clean sod for the consumers. Atrazine can also be used on centipede grass. Unlike the other herbicides discussed here, atrazine has considerable preemergence weed control activity. The Floratam cultivar of St. Augustinegrass is so resistant to atrazine that, after its

release in 1973, Floratam became the main turfgrass grown for sod in Florida.

Unfortunately, there are drawbacks to atrazine. It is relatively highly water soluble, therefore atrazine has been discovered in groundwater. Secondly, not all St. Augustinegrasses are equally tolerant of atrazine, and summer applications can be destructive. Bitterblue and FX-10 St. Augustinegrasses have less tolerance for atrazine than does the Floratam cultivar of St. Augustinegrass. Manufacturers have elected to label professional liquid formulations of atrazine as a Restricted Use Pesticide, so that only licensed users may apply those formulations, with the stipulation that they may not be applied **after Tax Day, April 15 until October 1** although different labels describe this differently. (Surprisingly, homeowners can purchase both granular weed-and-feed mixtures as well as certain liquid atrazine formulations, and do not have strict prohibition from April 16th through September 30).

The third problem with atrazine is that pest control operators have reported inconsistent results from using it to control certain important broadleaf weeds, such as dollarweed. Dollarweed is the most common broadleaf weed in St. Augustinegrass in Florida, in part because of the excessive irrigation used by homeowners, and the fact that dollarweed is a water-loving plant.

Each of the "new" broadleaf herbicides has some history. Lontrel® contains the active ingredient clopyralid, Manor™ and Blade™ have the active ingredient metsulfuron, which was used previously in the herbicide DMC marketed by O. M. Scotts and Sons briefly in the 1990s. Manor™ and Blade™ are very slow acting, but are effective against some particularly difficult weeds such as alligatorweed, a problem in some South Florida sod farms. Because such small rates of application of Manor™ and Blade™ are effective, extreme precautions must be taken to accurately weigh the small amounts needed.

SpeedZone™ St. Augustine Formula contains the new turf herbicide carfentrazone-ethyl, which the EPA considers a *reduced risk pesticide*, effective in herbicide mixtures at rates as low as 0.02 pounds per acre. Because of this, the EPA fast-tracked the approval process. Carfentrazone is in the triazolinone family which is believed to disrupt cell membranes due to a process called peroxidation. The result is death of contacted leaf areas upon exposure to light.

SpeedZone™ St. Augustine Formula is also unusual in containing the herbicide 2,4-D which was generally thought to be damaging to St. Augustinegrass. In the mid 1980s Dr. Wayne Currey, then turfgrass weed scientist for the University of Florida, observed considerable differences in the St. Augustinegrass injury among different phenoxy herbicide products. The differences were due to the concentration of herbicides other than 2,4-D, particularly mecoprop (once called MCPP), in the mixtures. From many experiments that I have performed in South Florida, mecoprop and not 2,4-D appears to be the killer of St. Augustinegrass. SpeedZone™ St. Augustine Formula contains a reduced concentration of mecoprop, and I have not seen injury to St. Augustinegrass from labeled rates applied at any season of the year.

The fourth component of SpeedZone™ St. Augustine Formula is dicamba, another common component of phenoxy herbicides for turf, and it helps boost the control of perennial broadleaf weeds.

To summarize, there are now several alternatives to atrazine for St. Augustinegrass. For more information, visit <http://Turfscience.com/weeds/broadleaf>. (Source: Monroe County Extension Commercial Newsletter, Jan-Mar 2003)

Asian Cycad Scale: a Fresh Perspective

Dave Palmer, Hillsborough County

The problem...

Infestations of this invasive scale insect have been continuing to move rapidly across the state since this pest was discovered in 1996 in Miami. This scale is known as cycad *Aulacaspis* scale, or Asian cycad scale. The family of plants affected is called cycads. This family includes king and queen sago, cardboard palms, and coonties. At this point, sago appear to be most vulnerable. Although these plants give the appearance of palms, they are actually unrelated to palms.

In general, scale insects hatch into a "crawler" stage capable of movement, or in some species, even limited flight. When they find a suitable spot on a plant, they insert their mouthparts, called a stylet (much like a straw), into the plant and start feeding. Shortly afterwards they begin to create a covering over themselves. They will stay this way until they die.

The unusually dense populations and rapid spread of Asian cycad scale suggests it is an exotic invasive and has few, if any natural enemies. If left untreated, this pest will kill its plant host. At its worst, an infestation of the Asian cycad scale can completely coat a medium-sized sago within several months. The coating can be composed of several layers and include a high proportion of dead insects as well as live scale insects. Heavy infestations can include up to 3000 scales per square inch in several layers.

The Asian cycad scale is unusual in that it can also infest the roots of cycads. These scales have been observed at depths up to 24 inches.

Is there a solution?

In the longer term, the ideal solution is one, or more, natural predators/parasites. Researchers at the USDA are currently rearing two potential insects to serve in this role. One is a predatory beetle and one is a parasitic wasp. The biological approach will not be quick fix. DPI, the Division of Plant Industry, includes those state employees that inspect the retail and wholesale nurseries. DPI and IFAS have made 17 releases of parasitic wasps this year in Hillsborough County. Many other counties have also released parasitic wasps.

In the meantime, several insecticides have proven effective. However, some chemicals may also destroy the parasitic wasps. The most consistently effective treatment is horticultural oil. Research indicates that the effectiveness of the oil is increased by using "Malathion-in-oil" rather than oil alone. **Malathion-in-oil** is sold premixed as a concentrate, but if necessary consumers can buy the products separately and mix together in a spray tank according to each label. This treatment is believed to interfere less with the establishment of biological controls than other pesticides.

The research indicates that treating the cycads every other week with malathion-in-oil will control the problem, **but only if the spray application is very thorough**. Any gaps in coverage allow the population to rebound quickly. Nearby infested plants can also spread the scale back to plants that have been treated. After 3 months of treatment the recommendation is to spray the cycad down hard with a garden hose to loosen the dead scale. Monthly or biweekly preventative treatments (**remember to be thorough**) should keep the sago safe while biological controls gain momentum.

While systemic chemicals such as imidacloprid (Merit) or acephate (Orthene) have proven effective, they sometimes appear to work well and sometimes appear not to work at all. Research is ongoing to determine why. These systemic chemicals may also interfere with the establishment of the predatory insects, so, they should be used only in severe infestations and then only on a limited basis, switching to malathion-in-oil soon after. If you decide to use systemics, the preferred method is to use them as a soil drench (provided the pesticide label allows this use) to limit their effect on any beneficial insects. Always read the label to make sure the product can be used on sago and that you're using the product safely and at legal rates.

For severe infestations or large difficult-to-treat sago, an option might be to remove all the fronds from the sago before beginning chemical application. This is not recommended as standard treatment - only on severe infestations or large and difficult-to-treat sago. Removal of the fronds allows the chemical application to be more thorough so more attention can be focused on the trunk and roots.

If you decide to prune your infested sago, disinfect your pruning tools between plants and after you've finished trimming. Use 1 part bleach in 9 parts water or use alcohol. Professionals might prefer to have two sets of pruning tools - 1 for use while the other soaks. Double bag the fronds and other clippings in plastic bags and secure. Take the clippings to an incinerator, not a landfill. If no incinerator is available, locate a spot well away from any cycads and bury the clippings. Also change clothes and wash your clothing immediately after trimming so as to not spread this pest.

Other factors...

Some people are suggesting that the situation is hopeless and the only solution is to dig up all sago and destroy them. In reality, the decision whether to treat an infested sago is primarily economic. Do you (or your customer) understand the costs of treatment in terms of time, labor and money? Is that particular plant worth the effort? If not than by all means dig the plant out, cut it up into pieces that will fit in plastic bags, double bag them so as to not spread the insect to other neighborhoods and send it to an incinerator rather than a landfill. **By all means make sure it doesn't get sent to a landscape debris recycling facility.**

(Continued on page 6)

Fruit Facts

Plant diseases in crops following strawberry

By
Jim Mertely

There are many factors to consider when following strawberry with another crop. With a few exceptions, the transfer of strawberry pathogens to the new crop is not one of them. For example, anthracnose fungi which attack strawberry are not pathogenic to cucurbits, tomatoes, or peppers. The gray mold pathogen *Botrytis cinerea* is pathogenic to a wide variety of plants, but is handicapped by the high temperatures prevailing when second crops are flowering and fruiting. The fungus that causes "leak" disease of strawberry fruit (*Rhizopus stolonifer*), on the other hand, also causes serious post-harvest fruit rots in cucurbits. Therefore, it may be important to continue removing unmarketable fruit from the beds, followed by prompt crop destruction, if cucumbers, melons, or squash are to follow strawberry.

A more diverse microbial community exists below the ground

than above. The soil is home to numerous pathogenic fungi that attack strawberry roots, and may cause damping off, seedling blights, and root rots of other crops. Some of the more infamous members of this group are



***Rhizopus* causes "leak" disease of strawberry fruit.**

Rhizoctonia solani, *Macrophomina phaseolina*, and species of *Fusarium*, *Pythium*, and *Phytophthora*. Short of soil fumigation, there is no single means of controlling such a diverse group of soil fungi. Fungicides are usually impractical and often unavailable for this purpose. However, foliar applications of Aliette fungicide and related phosphite fertilizers are frequently used to

suppress diseases caused by *Pythium* and *Phytophthora*. In addition, seedling diseases such as damping off can sometimes be avoided by the use of transplants or plug plants.

Plant pathogenic nematodes are a special category of soil pathogens that complicate the decision to double crop. Many cucurbit and solanaceous crops are susceptible to root knot and sting nematodes. While cucurbits are fairly tolerant to sting nematode damage, tomatoes, peppers, and other solanaceous crops may not be. Moreover, most of our popular second crops serve to maintain or increase nematode populations in the soil. These higher populations may threaten the next strawberry crop, if fumigation results are less than ideal. If the decision is made to plant a second crop in a nematode-infested field (not recommended), every effort must be made to destroy both the strawberries and the other crop as soon as their harvests are completed. (Source: *Berry/Vegetable Times*. Vol.III, Is.3)

Pest Alert

The giant whitefly was first discovered, in Volusia County, in December 1996 and is now in Seminole, St. Lucie, and Indian River counties. The giant whitefly will infest several kinds of plants, but has been a pest of *Hibiscus* species in Florida. In California, it has been reported to attack more than forty-three plant genera and thirty-five plant families (Lasalle et al. 1997). The giant whitefly was first discovered in the U.S. in Texas in 1991, California in 1992, Louisiana, and Florida in 1996. The giant whitefly adult is about three times larger than the adult of any other whitefly that occurs in the U.S.

Female giant whiteflies will deposit eggs in a spiral pattern and at the same time deposit white wax with each egg. The egg spirals appear as white concentric spirals on the undersides of

host leaves.

Host plants reported in Florida are: *Callicarpa americana* (beauty berry), *Citrus sinensis* (sweet orange), *Clerodendrum speciosissimum* (glory bower), *Coleus scutellarioides* (coleus), *Eranthemum pulchellum* (tropical blue sage), *Gossypium hirsutum* (cotton), *Hibiscus mutabilis* (confederate rose), *Hibiscus rosa-sinensis* (hibiscus), *Morus* sp. (mulberry), *Musa* sp. (banana), *Pyrostegia venusta* (flame vine), *Urena lobata* (Caesar's weed), and *Verbesina virginica* (frostweed).

The Florida Department of Agriculture and Consumer Services, Division of Plant Industry has released the nonstinging parasitic wasp *Entedononecremnus krauteri* to help combat the giant whitefly. Releases have been made in all counties where the whitefly has been found. In order for

this parasite to avoid the long wax filaments it has the unique habit of placing eggs into the whitefly larval stages from the upper leaf surface. Follow-up inspection at release sites has confirmed reproduction of the parasite in the field, but reduction in the whitefly populations has not been observed. It is anticipated that considerable time will be necessary for the parasite to catch up with the whitefly population and cause a reduction in whitefly numbers.



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(Continued from page 4)

On the other hand, this pest is just a scale and can be controlled, although the means of control is extraordinary.

Why is Asian cycad scale so difficult to control?

- 1) No natural enemies
- 2) Reproduces very quickly
- 3) Can move on the wind
- 4) Can live on the roots

The bottom line...

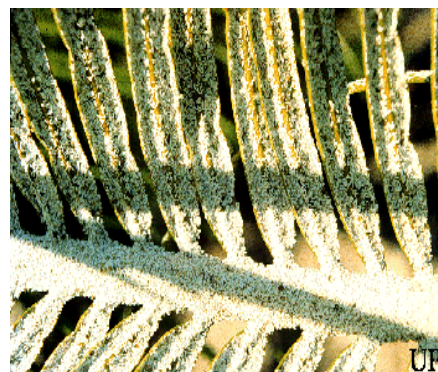
All is not lost. This is just a scale insect, although it's a tougher one to control than we're used to. It affects only 2 species. The hope is that once a predator/parasite population is established, it will greatly help control efforts. In the meantime some sagos that are not cared for properly will die.

Get the word out to your friends, neighbors and co-workers about proper treatment options. Remember the key is to **treat thoroughly**.

How can the Asian cycad scale be controlled?

- 1) The long-term solution is to find, raise, and release predator/parasites. This is being done by the USDA, FDACS, and IFAS.
- 2) The short term solution is to control the pest on as many plants as possible.
 - a) The first step is to treat the plants to reduce the populations of the scale.
 - b) The second step is to treat the plants preventively until the

predator population can grow to the point that the scale is controlled naturally.



Fronde of Cycas rumphii infested with the cycad aulacaspis scale