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This palm is not suffering from some new fatal disease of palms, but an old enemy, the Palmetto Weevil, *Rhynchophorus cruentatus*. They can fly as high as tall Washingtonias, so don't be fooled. See more on page 2.



Can this plant clean up your dirty water? Find out on page 4.



Find out how to control this without chemicals on page 4.

## Upcoming Educational Programs

For more information and links to most programs and agendas go to: <http://cfextension.ifas.ufl.edu> or the UF Extension Calendar at <http://calendar.ifas.ufl.edu/calendar/index.htm>

**Agritunity. Jan. 22-23, 2010.** Sumter County Extension Office, Bushnell. <http://sumter.ifas.ufl.edu/Agritunity/index.shtml>

**Eco-Nomic Living. Feb. 6, 2010.** 9 am—1 pm. Orange County Extension Office, Orlando. Contact (407) 254-9200.

**Lake County Farm Tour Day. Mar. 4, 2010.** Lake County Extension Office, Tavares. Contact Maggie Jarrell at (352) 343-4101.

**Palm School. Mar. 2-3, 2010.** Leu Gardens, Orlando. Contact Dr. Monica Elliott, [melliott@ufl.edu](mailto:melliott@ufl.edu) or (954) 577-6315. [http://cfextension.ifas.ufl.edu/documents/PalmManagementTraining-March2010\\_2\\_.pdf](http://cfextension.ifas.ufl.edu/documents/PalmManagementTraining-March2010_2_.pdf)

**Integrated Pest Management Update. Mar. 9, 2010,** MREC, Apopka. Contact Maggie Jarrell at (352) 343-4101.

**IFAS CEU Day—all about Herbicides. Mar. 30, 2010,** MREC, Apopka. Contact Maggie Jarrell at (352) 343-4101. 6CEUs, \$20.

### Pesticide Applicator Training

**Limited Certification Licenses Review and Exam. Jan. 27, 2010.** Orange County Extension Office, Orlando. Contact Celeste White at (407) 254-9200.

**Private Applicator/Ornamental and Turf. Feb. 17, 2010.** Lake County Extension Office, Tavares. Contact Maggie Jarrell (352) 343-4101 or go to <http://cfextension.ifas.ufl.edu/documents/PrivateApplicatorOT2-17-10.pdf>

**Limited Certification Licenses Review and Exam. Mar. 24, 2010.** Lake County Extension Office, Orlando. Contact Maggie Jarrell (352) 343-4101. <http://cfextension.ifas.ufl.edu/documents/LIMITEDREVIEW-3-24-10.pdf>



# Plant Clinic at MREC



The plant clinic is not closed, only changed! Because disease samples now must be sent to Gainesville for analysis (\$30), we have the plant clinic on Tuesday afternoons from 1-4 pm. This gives us time to send the samples before the weekend for analysis. You can still drop off your samples as before, but an agent will only be there on Tuesdays. Insect

identification and information, media electrical conductivity and pH, and advice are all still free. After consultation, we can tell you if we think it will be beneficial to send the sample to Gainesville and send it for you. Please use this free service so we can continue to provide it for you.



# Palmetto Weevil



The palmetto weevil is the largest in North America and is native to Florida. It used to be considered only a minor pest that attacked severely wounded and dying trees, but is now becoming more of a problem on stressed nursery and transplanted palms. They especially like sabal palms, saw palmetto, Canary Island date palm, date palm, Washingtonia and more.



Adults vary in color from solid black to red with a variable black pattern. The larvae or grubs are large and bore holes through the leaf bases and crown of the palm. Eggs are laid in the bases of leaves or wounds in a dying host palm. As they grow, they eat in towards the bud of the plant and then migrate out to the leaf stems to make a cocoon from palm fibers before pupating. The cocoon looks like shredded wheat (see bottom photo). The entire life cycle takes about 84 days. Adults are active flyers and can be found throughout the year in Florida. Adult activity is usually the greatest in the late spring and early summer months. They are attracted to odors from dying or stressed palms and to pheromones they release to tell others to join the party.



Insecticidal treatment of infested palms is futile, however protective systemic insecticide applications to the crowns of recently transplanted palms may help prevent infestations. An integrated program is best—manage the palms to avoid stress from nutrition, irrigation, wounding, and pruning. Remove and destroy infested palms to reduce the population.

For more information, go to <http://entnemdept.ufl.edu/creatures/>

◆ Production Times is brought to you by:

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# Research Summaries

For more information on sources, contact Juanita Popenoe



## Your Disease Headache may be next Biological Herbicide

Kudzu may have met its match in a naturally occurring fungus that Agricultural Research Service (ARS) scientists have formulated as a biologically based herbicide. ARS plant pathologist Doug Boyette and his team are testing a fungus (*Myrothecium verrucaria*). The fungus works so quickly that kudzu plants sprayed with it in the morning start showing signs of damage by mid-afternoon. In greenhouse experiments, spray formulations killed 100 percent of kudzu seedlings and 90 to 100 percent of older plants in outdoor trials. Host-range tests in 2005 showed that *Myrothecium* caused little or no injury to many woody plants including oak, cedar, pine, hickory, pecan, sassafras and blackberry. Besides kudzu, *Myrothecium* also showed potential as a pre-emergence bioherbicide, controlling purslane and spurge in transplanted tomatoes.

## Irrigation Frequency Posttransplant

UF researchers compared the growth after transplanting of wild coffee, copperleaf and orange jasmine irrigated for 28 weeks every 1 day, 2 days, 4 days or 8 days. Each irrigation event provided the same amount of water (3 liters). Plant growth was measured at 28, 52 and 104 weeks after planting. In a separate experiment sweet viburnum was tested with irrigation every 2, 4 or 8 days.

*Knowledge Gained:*

1. Irrigating wild coffee or orange jasmine every 8 days during the first 28 weeks after transplanting limited canopy growth but not root development.

After 52 weeks, rainfall was sufficient to eliminate any differences.

2. Wild coffee, orange jasmine and copperleaf from 3 gal containers can be successfully established in the landscape when irrigated with 3 liters of water every 4 days for the first 28 weeks.
3. Sweet viburnum grew the largest with irrigation every 2 days, but survived and grew after planting under natural rainfall conditions if provided with 3 liters of water every 8 days during establishment (until roots reached the canopy edge). Extra irrigation was needed only when there was no measurable rainfall for 30 consecutive days.



Calcium deficiency in stargazer lily.

## Calcium and Boron Deficiency in Plugs has Lasting Effect

Researchers grew pansy, petunia and gerbera plugs without calcium or boron to determine symptoms. Then they grew these plants during a normal production cycle, removing these elements for a 7 day period at the beginning, middle or end of the cycle.

*Knowledge Gained:*

1. Calcium deficiency was seen first on the youngest leaves which were discolored, upward rolling and eventually dead.
2. Boron deficiency was also seen first on the youngest leaves which were yellowing, upward curling, and thickened. The meristems were distorted and the new leaves strap-like.
3. Regardless of when the plants were deprived of calcium or boron, the deficiency symptoms were visible at the end of the production cycle.



(Continued from page 3)

## Pythium Root Rot Responds to Beneficial Microorganisms

Organic and conventional fertilization of geraniums was compared for tolerance to root disease. The organic fertilizer was from hen manure. Plants were inoculated with a suspension of *Pseudomona putida*, *Trichoderma atroviride*, a mixture of both or with *Trichoderma harzianum* and Rootshield®, 1 and 4 weeks after planting.

*Knowledge Gained:*

1. *Pythium* was significantly lower for organically grown plants for all treatments compared to the inoculated conventional plants.
2. For both organically and conventionally grown plants, the coinoculation with both *P. putida* and *T. atroviride* resulted in the least infection by *Pythium* and increased root growth regardless of the fertilization used.
3. All microorganism treatments in conventionally grown plants increased the fresh and dry weight of the shoot.

## Biological Control of Fusarium Aided by Formulation

*Trichoderma harzianum* was applied to melon plants in nursery conditions either as a liquid suspension of the conidia or in a solid bentonite-vermiculite formulation, and the level of colonization measured after 8 weeks.

*Knowledge Gained:*

1. The solid formulation maintained the *T. harzianum* inoculation levels after 8 weeks whereas the liquid form reduced levels by 2X.
2. Plants treated with the bentonite-vermiculite formulation had a higher shoot weight and higher resistance to *Fusarium* wilt disease.

## Adding Clay to Peat Media

Powdered clay was added to decomposed peat and fresh peat at a ratio of 10:90 (by volume) and then tested for physical characteristics..

*Knowledge Gained:*

Clay improved the wettability of both peat mixtures as well as improving the water holding capacity.

## Plants to Clean Up Stormwater

Researchers compared canna, iris, calla lily, dwarf papyrus, arum, pickerelweed and bulltongue arrowhead plants for their ability to remove nitrogen and phosphorus from water to see which would be best for stormwater remediation.

*Knowledge Gained:*

*Canna is the most promising for removing nutrients from the water, and harvesting the aboveground biomass effectively removes nitrogen and phosphorus from the system.*

## Vertical Spray Booms for Hanging Plants

Belgium researchers compared spray deposition on hanging ivy plants using a vertical boom sprayer and the more common spray gun.

*Knowledge Gained:*

*Vertical boom sprayers gave better coverage with less volume than spray guns, saving chemical and giving better pest control.*



## Stem vs Foliar Nutrient Uptake in Cuttings

Petunia cuttings were tested for nutrient uptake from unrooted cuttings to root formation with nutrients applied to the stem end or the leaves.

*Knowledge Gained:*

1. Stem applied fertilizer resulted in increased root length and root number.
2. Foliar application of N-P-K maintained tissue nutrient concentration at higher levels before rooting occurred.
3. Measurable N-P-K uptake occurred during root development from the foliar and stem portions of the cuttings.