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Compiled by Theresa Friday, Horticulture Technician, Santa Rosa County Extension

Front Page by Dan Mullins



The horticulture business is on the move in Santa Rosa County and I am excited about the potential for even more growth. Nursery production has increased dramatically over the past 10 years. Several large nurseries have become established and have expanded. Small, start-up specialty nurseries have also become established and will hopefully continue to grow.

It is good to see that a wide range of plant material is being produced. Specialization is often necessary and there are those that are growing for this market. The specialties being grown locally include native trees and shrubs, perennials, bedding plants, orchids, ornamental grasses and seasonal floral crops.

The production of fruits and vegetables has also increased. There are currently about 40 growers who produce for the fresh market. Marketing is the biggest challenge and a better system will see this segment of the industry grow.

The Team Santa Rosa Agri-business Committee, a division of the Santa Rosa County Economic Development Council, has been working hard to help provide marketing opportunities. Last summer, the "butterbean project" was initiated to determine if locally grown lima beans could be grown, processed and sold in volume. The next project was to move the local County vegetable market to downtown Milton. The new Riverwalk Market" opened in early May and has been very successful.

We have just received word that the Agri-business committee was awarded a \$10,000 grant to promote locally grown products. This money will be used to further develop marketing opportunities and the new "Santa Rosa Fresh" logo.

Landscape installation and maintenance is also an important part of the horticulture industry in the County. There are over 200 such businesses that contribute greatly to the

economy and provide this needed service.

The future looks bright for those of us who make our living in horticulture. Even though there have been some economic challenges over the past few years, we are a part of a relatively stable industry.

The following pages contain items that we hope will be of interest. Thanks to Theresa Friday for compiling this information.

Daniel E. Mullins
Extension Agent -
Horticulture/Vegetables



Upcoming Events

- ◆ July 31 to Aug 2: **SNA 2003**. Southern Nursery Association Inc. Atlanta. Call (770) 953-3311
- ◆ August 28: **Peanut Field Day**, North Florida Research and Education Center - Marianna. Registration begins at 8 am (CST). For more information call (850) 482-1242.
- ◆ September 5: **Row Crop Field Day**. University of Florida's West

Florida Research and Education Center. Call (850) 983-5216.

- ◆ September 23: **Southern Pine Beetle Prevention Workshop for Rural Landowners**, North Florida Research and Education Center - Quincy, 1 to 4 p.m. Southern Pine Beetle Prevention Workshop for Urban Woodlot Homeowners. Tallahassee/Leon County Extension Auditorium, 6:30 to 8:30 p.m. Call (850)

875-7148.

- ◆ Sept 25 to 27: **Florida Nursery & Allied Trades Show (FNATS)**. Orlando. Call (407) 295-7994.



Pesticide Potpourri (excerpts from *Chemically Speaking*)

◆ On May 2, the FDACS registered the fungicide **Acrobat 50 WP** (dimethomorph) to control diseases in Florida bulb vegetables, cucurbit vegetables, and lettuce.

◆ Two products that contain the herbicide triclopyr have recently been registered. **Garlon®** for control of immersed, submersed, or floating aquatic plants in aquatic sites which have minimal outflow, and marshy or banked shores around these sites, was registered on April 4, 2003. Additionally, **Renovate®** was also registered on April 4, 2003.



◆ Zoecon has introduced a granular mosquito larvicide for residential settings. **Pre-Strike®** (methoprene) is an insect growth regulator which will be sold in one-pound shaker bottles. It is ideal for birdbaths, flowerpots,

gutters, water gardens, tree holes, and other water-holding areas. It lasts for 21 days after application and is non-toxic to vegetation and wildlife when used as directed.

◆ "For Organic Production" may now be included on pesticide labels if all active and inert ingredients meet the requirements of EPA's final guidance issued March 5. The guidance relates to EPA approval of label language for products meeting National Organic Program Rule criteria. Access at http://www.epa.gov/opppmsdl/PR_Notices/

Nursery Notes

◆ Any grower that puts UPCs on plant material will be charged an annual renewal fee by the Uniform Code Council (UCC) beginning in 2003. Previously, UPC users paid a one-time fee. Renewal fees are based on the number of products needed to identify and a company's gross sales revenue. Based on the formula, the fee ranges from \$150 to \$1,500 per prefix, with a maximum of \$9,000 per member. Check the invoice to make sure your fee was calculated properly. <http://www.uc-council.org> (Source: Weekly NMPRO e-mail for April 1, 2003)

◆ Growers shipping plants outside the imported fire ant quarantine may soon have a new insecticide approved for treating plant materials. USDA proposed adding methoprene to its list

of approved treatments for the ants. The proposal would make Extinguish from Wellmark Int'l. available to treat containerized plants and field-grown woody ornamentals within quarantine areas. <http://www.aphis.usda.gov/lpa/news/press.html>. (Source: Weekly NMPRO e-mail for April 1, 2003)



◆ USDA Nat'l Ag. Statistics Service released 2002 Floriculture Crops

Summary results. Total crop value at wholesale for all growers with \$10,000 or more in sales is estimated at nearly \$4.9 billion, compared to \$4.8 billion for 2001. California is the leading state, with crops valued at \$962 million, down 4% from 2001. Florida is up 4% with \$877 million in wholesale value. These 2 states account for 38% of the total value.

Rounding out the top 5 are Michigan, Texas and Ohio, which with California and Florida account for \$2.6 billion, 54% of the total value. Total covered area of floriculture production is 911 million sq. ft., down 1%. Number of growers for 2002, 10,216, is down 8% from 11,081. <http://usda.mannlib.cornell.edu/reports/nassr/other/zfc-bb/> (Source: GMPRO greEn-MAIL, for May 6, 2003)

Web Watch

The mission of IFAS/Extension Bookstore is to aid in the presentation and distribution of for-sale research-based educational and consumer resources developed by UF/IFAS.

Two new publications are available. The IFAS bookstore has recently added a guide that addresses termite infestation and damage. **Termites in Florida - A Guide for Homeowners and Build-**

ing Professionals is an 82-page booklet which covers control methods, tips to avoid infestation, information on termite life cycles, and current building practices and codes.

To learn about grass pests, a new publication titled **Pests that Wreck Your Grass and Ruin Your Weekend** is now available. This colorful, informative booklet gives you the lowdown on

www.ifasbooks.ufl.edu

everything from armyworms to spittlebugs. (Source: IFAS Bookstore Release, 5/21/03).



Turf Tips

Are Golf Courses Holding the Carbon? Turfgrass As A "Sink" for CO₂

Next time you see Tiger Woods drive a golf ball 300-plus yards or Annika Sorenstam drain a 15-foot putt, take a look at what's under their feet. The beautifully manicured tees, fairways, and greens are not only helping the golfers enjoy their round, but are also helping the environment. That's because the turfgrass used for golf courses—and elsewhere—may help rid the atmosphere of carbon dioxide by capturing CO₂ through photosynthesis and sequestering some of it in the soil.

Agricultural Research Service soil scientist Ronald F. Follett and Colorado State University researcher Yaling Qian have studied soil records from 16 Denver-area golf courses. Follett says they found that carbon sequestration in the soil under turfgrass occurred at a "significant rate that is comparable to the carbon sequestration rate reported from U.S. land that has been placed in the Conservation Reserve Program." That voluntary program, run by USDA's Farm Service Agency, pays agricultural landowners to "establish long-term, re-

source-conserving covers on eligible farmland," which helps trap carbon.

Follett explains that golf course managers generally keep excellent soil records; some of the records used for this research go back 45 years. The scientists found that carbon sequestration lasts for up to 31 years in fairways and 45 years in greens, after which the rates slow or become negligible. While carbon sequestration exists on tees, it was not nearly as much as those on fairways and greens. The researchers are still investigating why this is the case.

A rapid increase in carbon sequestration occurs the first 25 to 30 years after the turfgrass is established. The study found that greens and fairways each store nearly a ton of carbon per acre per year. Since lots of turfgrass is growing on golf courses, suburban lawns, and public parks, the scientists hypothesize that the turfgrasses help to mitigate CO₂ emissions resulting from the combustion of fossil fuels. That is, CO₂ that may otherwise linger in the atmosphere is instead trapped in the soil. Follett and Qian believe this occurs "because of high productivity and lack of soil disturbance" in turfgrass. Cities and their suburbs too

have open spaces within them—like lawns and parks—that are planted with turfgrass. These areas may in fact serve as sinks for CO₂.

This is one of the first studies to measure carbon sequestration in urban environments. Other ARS scientists are studying rangeland (see *Agricultural Research*, October 2002) as well as farmland (see *Agricultural Research*, February 2001) as possible carbon sinks.

The scientists are currently using computer models to figure out the potential rates for carbon sequestration on golf courses. They are also conducting a more detailed evaluation of soil samples in fairways and in irrigated and nonirrigated rough.—By **David Elstein**, Agricultural Research Service Information Staff.

This research is part of Global Change, an ARS National Program (#204) described on the World Wide Web at www.nps.ars.usda.gov.

(Source: "Are Golf Courses Holding the Carbon? Turfgrass As A "Sink" for CO₂" was published in the June 2003 issue of *Agricultural Research* magazine.)

Fruit Facts

Every community has one or more gardeners who, come what may, grow heavy yields of fine tomatoes every year. There are some lessons to be learned here. Although cultural practices vary to some degree, these home-grown tomato gurus have a lot in common. Practices that result in high yields are very similar.

- ◆ They know their varieties, having learned the best yielding and best tasting varieties that can be grown under local conditions.
- ◆ They start as early as possible in order to have healthy, vigorous,

flowering plants established when night temperatures allow for fruit set.

- ◆ They start with "clean" transplants. More often than not they grow their own plants in order to ensure that they are free of disease, true to variety and available for early planting.
- ◆ They invest heavily in soil preparation. Organic materials are used liberally – compost and manures are incorporated in great quantities several weeks before planting.
- ◆ They maintain a thick layer of organic mulch beneath plants. Oak leaves and pine needles are the most

commonly used materials.

- ◆ Most begin fungicide applications early and continue, on a regular basis, throughout the season.
- ◆ They know how often to water and how much to apply at each irrigation.
- ◆ They "fine tune" fertilization to coincide with the growth stage and weather conditions. Generally, the objective is to provide plenty of nutrients in order to develop a strong, vigorous plant, but reduce the amount of fertilizer being applied as plants begin to fruit. (Source: *Vegetarian Newsletter*, July 2001)

Crown Rot of Liriope

INTRODUCTION - Widespread use of several types of Liriope has been accompanied in recent years by a leaf and crown rot disease which attacks Liriope during nursery production and in landscape plantings. This disease has been named **Liriope leaf and crown rot**. This disease is widespread in the southeastern states. All Liriope species and cultivars are susceptible to the disease, but the widely-grown cultivar 'Evergreen Giant' is more susceptible than others. Leaf and crown rot is caused by a strain of the common plant pathogen, *Phytophthora palmivora*.

Key diagnostic features - Diseased leaves are discolored (yellow) and appear watersoaked, and rotted at the base. Near the base, affected leaves become chocolate-brown. Closer to the crown, rotted leaf bases are light brown. Early in disease development, affected leaves develop a pale green or yellowish cast. Later, the bright yellow discoloration appears just above the rotted portion and extends slowly upward. Initially the upper-portion of the leaf remains green, but eventually, the entire leaf turns yellow and dies. Affected leaves, particularly those in advanced stages of disease development are easily pulled free from the rhizome or crown. Leaves that are brown or yellowed at the tip but remain green down to the point of attachment are probably affected by other leaf diseases, nutritional problems, or physiological disorders.



Typical disease damage caused by leaf and crown rot on Liriope, cv. Evergreen Giant'.

Management of leaf and crown rot in landscapes - Landscapers should obtain and install disease-free plants. Inspect and obtain plants from a nursery that is successfully managing or avoiding the leaf and crown rot disease and can consistently provide disease-free Liriope plants. Avoid plant crowding, planting too deep, and over-watering. Do not plant Liriope where there is a likelihood of frequent flooding or collection of excessive surface runoff. Where leaf and crown rot is already present, planting Liriope cultivars that are not highly susceptible to the disease is one possible solution. Presently-available fungicides probably have limited use in the landscape because they are costly and temporarily suppress, but do not cure, leaf and crown rot. Avoid soils with high organic and peat moss content .



Liriope crown rot damage caused by *Phytophthora palmivora*.

Replacement of diseased plants in the landscape - Research indicates that when infected or dead plants are removed from a landscape planting and a new plant is replanted in the same location, there is a good chance that the new plant will eventually become diseased. Often, infection and disease development in the new plant requires from 2 to 6 months to occur, but is likely to happen sooner during the summer rainy season. Plantings free of leaf and crown rot are likely to remain unaffected unless the disease is somehow introduced. Treatment of replacement locations with fungicides before replacing the plant is unlikely to be completely effective, but such treatments might reduce the number of new plants that become diseased. Further research is underway. (Source: *Leaf and Crown Rot of Liriope* by James Strandberg, Ph.D. <http://mrec.ifas.ufl.edu/jos/liriope2.htm>)

Tree Topic

Palm shaving is a term commonly used in commercial arboriculture referring to the shearing of palm leaf bases (also known as “boots” or “thatch”) using chain saws. Typically, palm shaving is performed when a large number of boots have accumulated on the trunk, and their removal is desired for a “clean” appearance. Palm shaving is also performed in field nurseries to “de-thatch” or “de-boot” palms prior to delivery. In some cases, clean trunks are recommended to reduce fire hazard, vermin infestation (insects, rodents, etc.), or potential damage from falling boots.

Palm fronds are individual leaves whose bases are attached to the trunks. Plant growth regulators will normally trigger the fronds to abscise (separate) as they senesce (grow old), but the degree to which abscission occurs varies from species to species. Some palms are considered “self-cleaning”, as their fronds readily abscise (i.e., coconut and royal palms), while others are “non-

self-cleaning” (i.e., queen and date palms), and require pruning to remove dead fronds in a timely manner.

When a large accumulation of boots occurs, removal can be challenging. Often, chainsaws are used to shear them off but, if not done carefully, slippage can occur, causing damage to the trunk. If the boots have not completely abscised and are firmly attached to the trunk, improper cutting can cause them to rip off, tearing the bark off with them, thus wounding the trunk. If the trunk is wounded, decay usually enters, often causing extensive trunk rot (remember: palms do not compartmentalize decay).

So, how is trunk cleaning properly addressed? First, prevent boot accumulation by avoiding overpruning. Every frond which is pruned off leaves a boot behind, therefore, over-pruning results in more boot accumulation. If the fronds are pruned while green, the hormones which trigger abscission (which are produced in the leaf tips)

may not have been released yet, and the boots remain firmly attached to the trunk for a longer period of time. I generally recommend that only brown or yellow fronds, and at most, one to two rows of live green fronds, be removed during a single pruning operation. This is just one more argument against “hurricane cuts”.

Regular boot removal, beginning early, is also important. All loose boots should be removed during each pruning cycle, at least once per year. Palm boots should be removed by hand as they naturally loosen. If they are not loose, do not remove them. They should not be forced or ripped off, as this will damage the trunk. Some arborists use a rubber mallet to gently knock off the boots.

In some cases, non-self-cleaning species such as date palms, retain their boots beneath the head to form a “nut” or “pineapple”, which is “sculptured” with chainsaws. In this

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Carbaryl Controversy

Under a legal agreement, EPA’s Office of Pesticide Programs must issue its Interim Reregistration Eligibility Decision for carbaryl by June 30, 2003. Carbaryl (N-methyl carbamate) is one of the most widely used insecticides in the United States. Thirty-nine million pounds of carbaryl are used yearly, with approximately 60 percent of the use in agriculture and the majority of the remainder in residential settings. Although the compound doesn’t persist in the environment for long periods, it is detected in surface waters, particularly in streams that drain urban watersheds.

The results from the dietary component of the risk assessment reveal values that are below levels of concern (LOC), and drinking water

risk also appears to be below any LOC. There were concerns with regard to residential risks. With regard to residential handlers, eight of the 17 exposure scenarios modeled were over the target for combined dermal and respiratory exposure. Scenarios include garden and ornamental dusting, hose-end garden spraying, dog dusting, lawn belly-grinder, and hand-sprinkling granulars. It also has become clear that the current 12-hour restricted entry interval for carbaryl will most likely be modified to a longer period, such as two or three days. During a conference call regarding agricultural use, many use groups were asked about their flexibility for changing this period.

Also a concern is the environmental risks of carbaryl. Levels of concern were

exceeded from all uses at the maximum label rates and for 89 percent of the uses at “average” use rates. Granular and bait formulations exceeded acute-risk LOCs for all 40 registered uses. All acute LOCs for freshwater and marine invertebrates were exceeded from carbaryl use at maximum and “average” application rates. The division responsible for the assessment has stated that perhaps the biggest mitigation option is the restriction of aerial application, since carbaryl is sufficiently volatile to result in aerial transport of the chemical. Longer reapplication periods would also reduce estimated environmental concentrations by 30 to 40 percent.

(Source: Chemically Speaking, Pesticide & Toxic Chemical News, 4/7/03 & 4/14/03, EPA conference call of 5/7/03)

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case, boots should be pruned individually, as close to the trunk as possible. Smaller-sized chainsaws or hand-saws and upward cuts can be used to help prevent slippage into trunk tissue, or tearing of the boots from the trunks. Also, the use of a bucket truck to get closer to the head makes it easier to prune more carefully and uniformly.

Cabbage and Washingtonia palms are often purchased as “booted” specimens, with the boots intact all the way down the trunk. As the palms age, the lower boots eventually begin to abscise and fall off. This is a normal aging process, and the loose boots should be removed as they naturally loosen. In a multi-palm planting, it can be difficult to maintain uniform boot

retention, but begin with removal of the bottom-most fronds and work up to one consistent height. If the fronds were pruned prematurely, the boots may not adequately loosen; this may require severance at the base of the boot with saws or pruning shears and a small section of the boot will have to remain attached to the trunk to avoid trunk damage.

Sometimes cabbage palm trunks are shaved in their entirety prior to delivery. In this case, every effort should be made to avoid cutting into trunk tissue; as many boots as possible should be removed by hand. A clean but undamaged cabbage palm trunk should still have visible leaf scars, no obvious gouges or exposed vascular fibers, and the bark color is usually a weathered gray rather than the

reddish-brown of freshly-exposed wood. It may take many years for a damaged cabbage palm trunk to decay, but eventually significant trunk cavities will occur.

In summary, palm shaving can be a useful tool, but can cause damage to the palm if not done properly. Proper pruning practices – avoiding excessive frond removal and performing regular removal of naturally-loosened boots - can prevent the need for extensive shaving. For palms with decorative boots, uniform pruning of individual fronds as close to the trunk as possible with small chainsaws or handsaws and upward cuts will provide the best overall appearance with the lowest risk of damage.

(Source: Orange County Environmental Horticulture Issues Newsletter Vol. 12, No. 2. This article originally appeared in the Florida Arborist newsletter.)