UF UNIVERSITY of FLORIDA IFAS Extension

Production Times

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Upcoming Educational & Industry Events

August 12, 2011- 8:30 am—3:00 pm Workshop for Ornamental Greenhouse & Nursery Owners, Growers, and Staff—Mid-Florida Research and Education Center Auditorium
Registration deadline is Friday, July 29, 2011. RSVP to Dr. Joyce Merritt at joycem@ufl.edu or 352-273-4647

Sept. 29-Oct. 1, 2011—FNATS—The Landscape Show —Orange County Convention Center
More details available at: http://www.fngla.org/thelandscapeshow/

Oct. 23-26, 2011—International Plant Propagators' Society Southeast Region Annual Meeting
Rainwater Conference Center—Valdosta, GA
More details available at: http://www.ipps-srna.org/meeting.htm

CEUs
November 3, 2011 - CEU Day - Seminole County Extension Office. Contact Matthew Lollar at 407-665-5551. More details available at http://seminole.ifas.ufl.edu/comm_hort.shtml

Coming Soon – Review of Dr. Richard Beeson's Tree Growth and Water Requirements research. Watch emails for details.

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

Helping Your Business Navigate the Economy

by Liz Felter

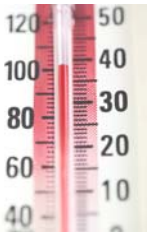
The following YouTube link was sent to me by a colleague. I found the information very interesting and thought it might be helpful to many of you. Ken Gronbach is a consultant for direct marketing and management. He specializes in demographics (i.e. the age, gender, income, occupation, etc) of your customers. This is important information in order to have a marketing plan for the present and the future. What works today won't work in 10 years. By monitoring the change in generational demographics, you can be better prepared to change your marketing strategy to meet the needs of the new consumers. For more information follow then the link below and watch the YouTube presentation.

The Age Curve, by Ken Gronbach, Consultant for Direct Marketing and Management.

http://www.youtube.com/watch?v=oy7zT6ogCJI&feature=related

Protect Yourself from Heat Stress

By Liz Felter



When the body is unable to cool itself by sweating, several heat-induced illnesses such as heat stress or heat exhaustion and the more severe heat stroke can occur, and can result in death.

Factors Leading to Heat Stress

- High temperature and humidity
- Direct sun or heat
- Limited air movement
- Physical exertion
- Poor physical condition
- Some medicines
- Inadequate tolerance for hot workplaces

Symptoms of Heat Exhaustion

- Headaches, dizziness, lightheadedness or fainting
- Weakness and moist skin
- Mood changes such as irritability or confusion
- Upset stomach or vomiting

Symptoms of Heat Stroke

- Dry, hot skin with no sweating.
- Mental confusion or losing consciousness
- Seizures or convulsions

Preventing Heat Stress

- Know signs/symptoms of heat-related illnesses; monitor yourself and coworkers
- Block out direct sun or other heat sources
- Use cooling fans/air-conditioning; rest regularly
- Drink lots of water; about 1 cup every 15 minutes
- Wear lightweight, light colored, loose-fitting clothes
- Avoid alcohol, caffeinated drinks, or heavy meals

What to Do for Heat-Related Illness

- Call 911 (or local emergency number) at once

While waiting for help to arrive:

- Move the worker to a cool, shaded area
- Loosen or remove heavy clothing
- Provide cool drinking water
- Fan and mist the person with water

News from the Diagnostic Plant Clinic

By Liz Felter

Saprophytic White Fungus

Saprophytes live on dead organic tissue. This white fungus appeared on the pothos, totem, and soil. Fungus growth is supported by low light, excess water, and the green-wood totem.

Photos by Dr. Shad Ali, Plant Pathologist at UF/IFAS, MREC

Improving Greenhouse Substrates

By Matt Lollar

Researchers at North Carolina State University are conducting research on the frequently studied topic of improving the efficiency of substrates for greenhouse production. Their goals are:

- To explore the use of wood as an organic aggregate in greenhouse mixes.
- To enhance root growth in greenhouse crops.
- To increase the nutrient retention of substrates.
- To improve the overall biology of greenhouse substrates.

To meet these objectives, the approach being used at NC State is to develop new, sustainable components for greenhouse substrates with an emphasis on substrate component manufacturing.

New components for greenhouse substrates must be highly consistent, lightweight, readily available, and reasonably priced. NC State researchers are searching for new components that are as sustainable, natural, economical, and organic as possible. Over the years, several hundred potential materials have been tested; however, most greenhouse mixes are still made from the familiar components: peat moss, pine bark, perlite, vermiculite, and/or coconut fiber. Other components have not been able to provide the precise control needed in modern greenhouse production.

Organic Aggregate

One component being researched is a sustainable aggregate to improve aeration and drainage. Most perlite comes from ore that is mined in Greece, shipped across the Atlantic, and expanded at very high temperatures into perlite. This process produces a cost to the grower of more than $2 per cubic foot. One solution is using ground wood from whole trees. This is far from a new concept, but the researchers from NC State took on a new approach. They were able to show that many processing factors affect the size, shape, and performance of finished wood substrate materials: the initial processing of trees (shredded or chipped), the brand/style of machine, the moisture content of the tree, the tree species, type of hammermill, screen size, etc. Variation in any one of these factors can produce very different results.

Enhanced Root Growth

An unexpected, but consistent result in using wood-based materials in mixes is an improvement in the root mass of greenhouse crops. Growers who have tried these new materials have observed more roots, larger roots, and faster root growth. The hypothesis is that the wood materials provide greater aeration, which stimulates root production. Little data is available to support these claims, but researchers are investigating this possibility.

Biochar

The use of charcoal (biochar) to improve nutrient poor soils is well documented. Charcoal is produced through a process called, pyrolysis, a slow-burning process under reduced oxygen. Once an organic material has been pyrolyzed, it is lighter in weight, increases in cation exchange capacity (CEC), and lasts for many years without degradation. Unfortunately, not all biochar is created equal. Most biochar is produced on farms in the field with various low-cost/low-tech methods. Differences in oxygen content, feed stocks, and processing create variations in the desired properties listed above. That being said, the biochar that might work for acres of nutrient-poor soils farmers will not be consistent enough for greenhouse substrates. A much more precisely and consistently controlled biochar product can be produced from a continuous line process that precisely controls time, temperature, and heat exposure.

The potential benefits of biochar to substrates are tremendous. The high surface area and pore structure of biochar provides a habitat that favors natural microbe populations. Microbial populations are being monitored in substrates and variations of biochar will be tested for improving soil biology.

The achievement of these goals is not certain and anyone of a dozen outside factors could prevent these efforts form coming to fruition. However, NC State researchers are optimistic that they can help in providing new substrate component choices.

Online CEU Sources

http://kgioeli.ifas.ufl.edu
http://www.bobkesslerceu.com
http://www.ceuweb.com
http://www.flaes.org
http://pests.ifas.ufl.edu/

Need just a few CEUs?
Go to:
http://hillsborough.extension.ufl.edu/Ag/AgOrnProd/OnlinePesticideCEUs.html
Or
http://growingproduce.com/floridagrower/

Microbes Computed

http://pested.ifas.ufl.edu/newsletters/2011-05/microbes.html

Those vegetables you had for dinner may have once been protected by an immune system akin to the one that helps you fight disease. Scientists from the U.S. Department of Energy's Lawrence Berkeley National Laboratory (Berkeley Lab) and the Netherland's Wageningen University found that plants rely on a complex community of soil microbes to defend themselves against pathogens, much the way mammals harbor a raft of microbes to avoid infections.

Previous research on the phenomenon of disease-suppressive soil had identified one or two pathogen-fighting microbes at work. But the current team found a complex microbial network. After analyzing soil from a sugar beet field that had become resistant to a pathogen (*Rhizoctonia solani*) that causes root fungus, the scientists found 17 soil microbes fighting to suppress the pathogen. They also determined that all of the microbes work together to reduce the incidence of fungal infection. The sugar beets' health followed the typical arc of plants in disease-suppressive soil: they enjoyed a few good years, then they succumbed to disease, followed by healthy beets again as pathogen-fighting microbes were activated and the soil became hostile to *R. solani*. To return the favor, the sugar beets funnel about a fifth of their photosynthetically captured carbon through their roots into the soil to fuel the microbes.

To characterize all the microbes, the scientists used the PhyloChip®, which is a credit-card sized chip that can detect the presence of 59,000 species of bacteria and archaea in samples of air, water, and soil without the need of culturing. It was developed at Berkeley Lab to rapidly identify not only the most common and abundant organisms in an environmental sample, but also very rare types that are present in extremely small numbers. It does this by comparing DNA sequences unique to each bacterial species with over one million reference DNA targets on the chip. Soil samples from the sugar beet field were modified to exhibit six levels of disease suppression. Bacterial DNA was isolated from the samples and the PhyloChip detected more than 33,000 bacterial and archaeal species in the samples, with all six having more or less the same types of bacteria. But when the scientists looked at the abundance of bacteria in each sample, they found that each had a unique fingerprint. All of the samples in which disease was suppressed had a greater abundance of 17 unique types of bacteria. These included well-known fungal fighters such as *Psuedomonas, Burkholderia, Xanthomonas* and Actinobacteria. In addition, other types of bacteria that have no demonstrated ability to fight pathogens on their own were found to act synergistically to suppress plant disease. Based on this, the scientists believe that an increase in several bacterial types is a more important indicator of disease suppression than the presence of one or two bacteria that are especially good at killing pathogens. (Lawrence Berkeley Labs release, 5/5/11).

♦ **Production Times** is brought to you by:

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