



# Production Times

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## Cowpeat for Potting Media

Adapted from Qiansheng Li "For Peat's Sake"

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Researchers at the University of Florida supported in part by the Florida Department of Agriculture and Consumer Services are currently testing cowpeat for its use as a major potting media component for foliage plant production and propagation. Peat is a major component of soilless media used for containerized ornamental plant production. However, peat is a part of the wetland ecosystem. Peat harvesting releases carbon dioxide into the atmosphere. Thus, peat harvesting is being regulated and peat prices are continuing to rise as the supply decreases. With the rapid expansion of ornamental plant production, there is an increased need for alternative organic materials that can be partially or completely substituted for peat. Cowpeat may be an alternative for peat. Cowpeat is a composted material derived from dairy manure.

For the experiments, researchers used a commercial media formulation, 20% perlite and 20% vermiculite with 60% Canadian or Florida

peat based on volume as controls. Next, the peats were replaced with cowpeat at 10% increments up to 60% which resulted in 14 potting media tested. Physical and chemical characteristics such as micro and macro nutrients, porosity, water holding capacity, EC, pH, bulk density, etc. were tested and results indicated that the media formulated with cowpeat were similar to those formulated with either Canadian or Florida peat.

Formulated media were used for germinating seeds of *Asparagus densiflorus* 'Sprengeri', *Chlorophytum amaniense* 'Fire Flash', and *Schefflera actinophylla* 'Umbrella Tree', and rooting cuttings of *Epipremnum aureum* 'Golden Pothos', *Philodendron scandens oxycardium* 'Heartleaf Philodendron', and *Ficus benjamina* 'Weeping Fig'. The media formulated with cowpeat showed little difference in the percentage of seed germination and rooting compared to those formulated.

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**Pest Alert-Maranta Mite!** The Maranta mite, *Steneotarsonemus furcatus*, is a serious problem on Maranta, Calathea, as well as Stromanthe cultivars. Early signs may appear as necrotic lines that parallel the margin of the leaves. Chemicals and biological control have shown to have little to no affect on this mite. Many operations have chosen to discontinue growing susceptible varieties. For more info go to: <http://mrec.ifas.ufl.edu/foliage/folnotes/maranta.htm>

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## Plant Clinic Problem of the Quarter -

Cylindrocladium is a fungus that attacks in the warm summer months and can cause severe damage to Spathiphyllum and other foliage plants. The first symptoms noticed are yellowing lower leaves and wilting. This is caused by the extensive root damage this pathogen causes. Reddish brown lesions on the roots rapidly expand, causing total root collapse and rot. Thousands of spores are produced in these infected root masses and move from plant to plant via water. When splashed on the leaves, the spores cause dime sized circular brown spots surrounded by yellow halos. When infections are detected, plants showing severe symptoms should be removed and the remaining plants drenched with the appropriate fungicide. Dr. Norman at MREC has published research on the web at <http://mrec.ifas> about fungicide trials. He found that no chemicals provided complete protection from infection under the high disease pressure of his experiment, but Cleary's 3336, fluazinam and Terraguard reduced disease severity ratings.



## SNA 2008 Research Roundup

*By Juanita Popenoe*

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### Watch out for Roundup

Do you use glyphosate around the trunks of your trees? If you do, you need to know the latest results from a study in Ohio. The new formulations of glyphosate have more surfactants to help them work faster. These surfactants also help the chemical get through bark and into the trees you are trying to protect if you are not extremely careful when applying. Their research indicates that glyphosate is taken up through thin or colored barked trees, and once in the phloem of the plant can take years to break down. It is stored

in the roots with sugars, and can be translocated back to new growing tips in the spring, causing carryover injury. A sub-lethal dose may take a few years to show symptoms as the chemical accumulates. The symptoms include witches broom, stunting, bark cracking or splitting, loss of apical dominance, individual dead limbs, yellowing leaves, reduced cold hardiness and death.

### Soil Moisture-how to tell when to irrigate

The root ball is the most important area to measure moisture for scheduling irrigation, not the

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surrounding soil. Irrigation when the root ball was at 10% soil moisture reduced water use without significantly affecting plant growth. Researchers measured a 53% reduction in nitrogen runoff going from overhead irrigation on a time clock to overhead irrigation based on a soil moisture sensor. Another researcher looked at different ways to determine when to irrigate. They found that guessing when to irrigate wasted 50-150% excess water. Using the leaching fraction method took too much time, but gravimetric scheduling (based on the weight of the container) used the least water, caused the least leaching and was easy to use. The idea is that weight loss=water loss. They used a load cell and weighed a plant/pot at a container capacity and scheduled the irrigation to come on when the weight loss was 94-98% of container capacity initially, then reduced that to 92-96% of container capacity later in the season, and even less in the fall.

### **Root Splitting**

Splitting the root ball 2/3 up, quartering the root ball or leaving the root ball undisturbed at transplanting caused no difference in shrub growth.

### **Pine Tree Substrate**

Pine tree substrate (PTS, made from whole pine trees rather than just the bark) required additional nitrogen fertilizer-about 100 ppm more for herbaceous plants and about 4 lbs more controlled release for woody plants. This was dependent on particle size and PTS storage time. The larger the particle size, the less surface area, the lower the water holding capacity, the higher the air space, the fewer microbes breaking it down, and the less nitrogen is immobilized by the microbes. By controlling particle size with

grinding and amendments, you can create the media with the characteristics you want.

### **Fertilizer rates and Philodendron acclimation**

Nitrogen needed for chlorophyll and plants in low light will need more chlorophyll to capture all the light energy the plant needs. But plants put into lower light levels to acclimate do not need more fertilizer. There was an increase in chlorophyll within three days of plants being put in low light levels but this was not affected by fertilizer level. Acclimation took about one week regardless of fertilizer. The plants in low light and low fertilizer mobilized other sources of nitrogen within the plant to make the needed chlorophyll.

### **Persistent fertilizer pollution**

EDTA, used in micronutrient fertilizers, medicine, toothpaste and industry is not biodegradable and has become a very common persistent pollutant that the European Union is very concerned about. EDTA is used to make micronutrients more accessible to plants, but wild in the environment, it can extract metals from the soil and make them more able to leach. EDDS is biodegradable and so far has shown to be a suitable replacement. Joe Albano from the USDA in Ft. Pierce is doing further work to make EDDS acceptable.

Read about these research results and more and [www.SNA.org](http://www.SNA.org)

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ed with Canadian or Florida peat. Then the media was used for production of *Dieffenbachia* x 'Star Bright' in 6 inch pots *Nephrolepis exaltata* 'Boston Fern' as hanging baskets in 8-inch pots, and *Epipremnum aureum* 'Golden Pothos' on poles as climbers in 8-inch pots either from tissue culture liners or cuttings. Plants were kept in greenhouses and data showed that cowpeat could completely replace peat up to 60% without damaging effects on plant growth. The replacement of cowpeat may possibly allow reduced fertilizer application because of nutrients supplied in the cowpeat. Further studies are being performed to evaluate nitrate nitrogen and phosphorus leaching from potting media. The composting of dairy manures minimizes the environmental problems associated with peat mining as well as converting manures into organic materials for potential income for dairy producers in Florida. Cowpeat can provide the ornamental industry with an alternative to peat which in turn will contribute to the well being of Florida's natural environment.

For more information about this study refer to Li, Qiansheng, Chen, J., Popenoe, J., and L. Parker 2008: For Peat's Sake, Ornamental Outlook. August 2008: 24-25.



## Power Units for Greenhouse Operations

By Lelan D. Parker

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Your valuable plants in the greenhouse may be lost or damaged due to a power outage. It is not always necessary to provide standby power for all greenhouse electrical equipment, however the successful operation of some greenhouse equipment requires the availability of electricity at all times. An auxiliary power unit may give you that extra insurance against losses or brown outs. A standby power system consists of a generator, an engine or tractor to power the generator as well a transfer switch. For more information go to: <http://edis.ifas.ufl.edu/pdf/ae/ae03300.pdf>

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## 2008 Planning Calendar

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Links to most programs and agendas may be found at: <http://cfextension.ifas.ufl.edu> or the UF Extension Calendar at <http://calendar.ifas.ufl.edu/calendar/index.htm>

### October

18—Limited Commercial Landscape Maintenance License Review and Exam. Seminole County Extension Office. (407) 665-5551.

### November

6- CEU Day and Workers Protection Standards Train the Trainer. Orange County Extension Office. (407) 254-9200

19—Expanding Your Plant Palette. Harry P. Leu Gardens. (352) 343-4101.

### December

3,10, 17—Nursery and Greenhouse Integrated Pest Management Scouting Training. Apopka, FL. Mid-Florida Research and Education Center. (407) 254-9200

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