



2010 Pest & Production Management Conference  
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# Fine-tuning Production

Much of the art of growing is rooted in science – chemistry and plant physiology. Leading floriculture researchers kept growers on the cutting edge during the Pest & Production Management Conference.

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**P**EST and disease issues don't surface in a vacuum. Cultural practices create environments that will either favor or prevent infestations, as well as produce plants that are resilient or susceptible. That's why the Society of American Florists' Pest Management Conference has expanded its scope to become a Pest & Production Management Conference. Greenhouse Grower has been pleased to be a partner in this endeavor and this is the third article presenting the takeaway tips from the conference hosted in late February. While the first two covered pests and diseases, this one covers the rest: nutrition, growing media and plant growth regulators (PGRs).

## Know Your Nutrients

Paul Fisher from the University of Florida and Bill Argo from The Blackmore Co. gave growers a refresher course on the importance of measuring pH, electrical conductivity (EC) and alkalinity. "These are three things you can measure in house effectively," Argo says. "For anything else, you have to send water samples to a lab for a complete nutrient analysis."

They emphasized the importance of calibrating meters on a regular basis. Alkalinity

needs to be measured separately because it is the amount of dissolved limestone in water. "Test strips are not as good as titration, so get a total alkalinity kit to measure all dissolved bases," Argo says. "pH management takes into account water alkalinity, fertilizer media, residual lime, water management and the plant species. You should choose a fertilizer based on alkalinity."

Fisher and Argo then presented nutritional guidelines for irrigation water and the effects of nutritional deficiencies and toxicities. They also covered pros, cons and recommendations for various water sources – well, surface, rain, municipal and reverse osmosis purification.

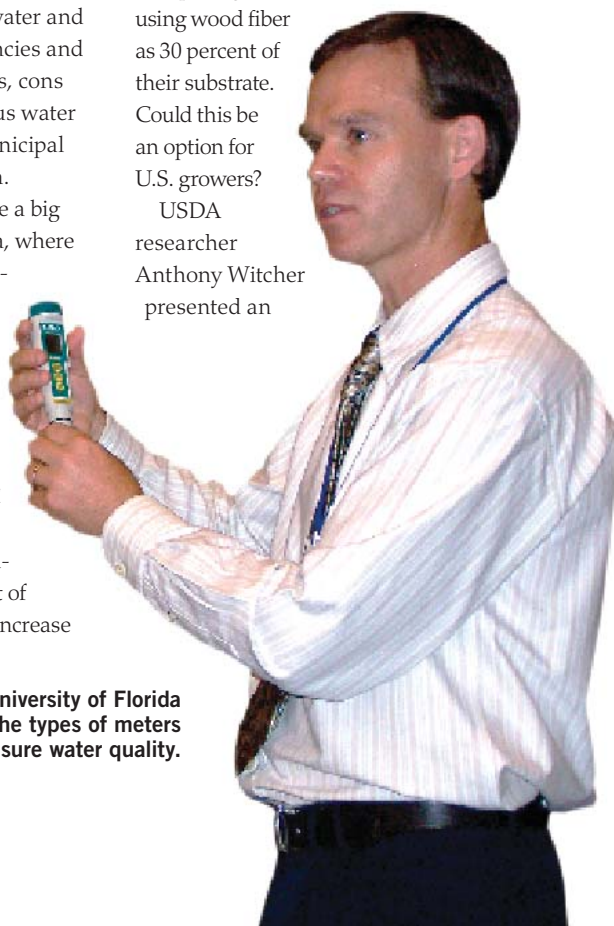
Leaching nutrients has become a big concern in California and Florida, where there are water use and runoff restrictions. While some growers are switching to slow-release fertilizers, a rainstorm could be an involuntary leaching with outdoor production. "Growers need the ability to lower salt concentrations and there are high EC levels in the water in California already," Argo noted. They recommend growers reduce the amount of water and fertilizer they use and increase the uniformity of their watering.

**Paul Fisher from the University of Florida demonstrates the types of meters available to measure water quality.**

## Looking At Alternatives To Peat

Depending on how soggy the bogs are, there is always a potential for a peat harvesting shortage. Sustainable harvesting and how renewable peat is also continues to be a concern. Most of the peat U.S. growers buy is harvested in Canada. Some European peats are imported, but restrictions on harvesting are increasing in Europe. In fact, some European growers are using wood fiber as 30 percent of their substrate. Could this be an option for U.S. growers?

USDA researcher Anthony Witcher presented an





Water treatment was a focus on the grower tour at Hermann Engelmann Greenhouses (above). Paul Fisher hands out sample water testing kits to growers (right).



update of the work and research he has been doing with Young's Plant Farm in Alabama using wood fiber as a peat alternative. Young's has its own source of trees to grind up finely in a hammer mill and supplement peat in its mixes. The company is testing the media on crops and expects to recoup the investment within three years.

Just like with pine bark-based growing mixes, the wood content does tie up more nitrogen than peat. Witcher recommends using ammonium plus nitrate.

For growers who do not have their own wood source, Witcher says the cost to buy wood chips is \$11 per cubic yard compared to pinebark at \$16-\$26 a yard and peat with perlite at \$45-\$75 per cubic yard. Wood shavings and timber thinned or clear cut from forests could be additional sources. One high demand, competing use for these wood products is increased interest in biomass heating – using wood as a fuel source, and the incentives to do so. These are factors to keep in mind.

### New Frontiers In PGRs

Jim Barrett and Sonali Padhye at the University of Florida and their colleagues at other universities continue to test all the new (PGR) chemistries and products on a wider range of crops. In addition to annuals and blooming potted plants, these include perennials, ornamental grasses, tropicals, orchids and succulents. New poinsettia cultivars continue to be of interest because each variety reacts differently.

In annuals, multiple drenches at lower

rates have been useful in helping growers hold plants when there is a delay in shipping to retailers. Barrett noted that Wave petunias have made the entire industry do a better job using PGRs on baskets. More testing is being done on vigorous vegetative annuals, too.

Newer experiments include liner dips and applying PGRs to growing media at the germination stage, to resolve re-entry issues later in the crop. "In some species, drenches and liner dips may need to be followed up with late sprays," Barrett says, adding growers need to be mindful of residual effects using flood floors. The chemical may last for multiple crops.

Experiments assess variations among active ingredients. Climate is a factor, too. Rates tend to be double in the South. "The recommended rate depends on what the grower is trying to do," Padhye says.

One intriguing new product that isn't on the market yet is ConTego from Valent. The product enhances drought tolerance by closing plant stomates and inhibiting transpiration. "It could enhance shelf life at retail and be an insurance policy at retail," Barrett says. "There's a lot of potential. We have to make sure it doesn't impact photosynthesis. If plants can't transpire, they won't grow in the garden."

The university also is looking at FreezePruf to see if it does indeed provide two to nine degrees of protection from freezing. This could help growers with outdoor crops during unexpected cold snaps.

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