

Irrigation

By Todd Davis

Improve uniformity and water efficiency

BELOW: University of Florida's irrigation box collects water, irrigates plants via capillary action and can be moved with a forklift.

RIGHT: Drip irrigation has been a water-saving solution for many growers.



Water has become a huge issue in the nursery industry. Years ago, an ample supply of inexpensive, clean water was taken for granted. Now it's a cherished resource to be monitored on a regular basis.

Nurseries have spent millions of dollars over the last 10 years to preserve water. Some have



Closely monitor fields for irrigation uniformity. Proper application can be hampered by worn nozzles or clogged heads.

4 EASY WAYS TO CONSERVE WATER

Water conservation doesn't necessarily mean redesigning your entire irrigation system. Here are some pointers.

- 1. Watch for breaks.** Train employees to keep keen eyes out for leaks, broken heads and emitters, etc.
- 2. Know how much to water.** Learn how much water your crops need, and measure water leaching from containers. New literature recommends 10-15 percent leachate of what's applied to containers.
- 3. Group plants.** Group water-loving plants and plants that get by with less irrigation in different irrigation zones.
- 4. Use cyclic irrigation.** You'll use less water by irrigating crops several times a day with short cycles than watering once a day with a long cycle.

installed complicated water-recycling systems. Others have converted overhead irrigation to more water-efficient methods.

No matter what type of system you use, the key to a good system is installing it right the first time, said Tom Yeager, professor at the University of Florida Department of Environmental Horticulture.

"Make sure you design the system well from the beginning," Yeager said. "There's no substitute for that, and a poorly designed system is almost impossible to correct."

Check uniformity

Bad uniformity is a common problem with irrigation systems. A poorly performing system can overwater some plants while underwatering others. And if growers aren't watching systems closely, they won't be able to tell until crops start to suffer.

Checking uniformity can be rather simple, but for tips, go to the university's Web site; <http://edis.ifas.ufl.edu>. It contains documents with helpful pointers.

"Don't forget the importance of making a record of application," Yeager said. "Did the system deliver what you thought the plants need? Did the system run at all today? It can be as easy as putting out a dish and checking it for water every day."

Cyclic rules

Many nurseries have discovered the benefits of cyclic irrigation — applying small doses of water to plants several times a day rather than giving them one big drink. With cyclic (sometimes called pulse) irrigation, growers can get by with lower water use, and plants demonstrate less drought stress during the daylight hours.

"It's become very popular, particularly among growers using microirrigation and those growing plants in large containers," Yeager said.

Most apply two to four cycles during the day, but university research from around the country has demonstrated benefits from as many as six or eight daily applications.

"I think some people showed some benefits from the larger number of applications, but in the real world you run into some practicality issues. Two to four cycles is sufficient," Yeager said.

Growers using overhead irrigation should also monitor leachate, or the amount of water that drains from the bottom of containers.



Many growers are collecting irrigation runoff, and some are now required to by law.

While this seems like wasted water, some leachate is recommended to help eliminate buildup of excess salts in growing media.

New recommendations call for a 10-15 percent leachate fraction, Yeager said, meaning this percentage of the water applied to the container should leach from the pots.

New ideas

Many new ideas are being proposed for nursery irrigation, and some are already being put to use.

Small-scale flood (or ebb-and-flow) irrigation systems have been used for many years with greenhouse crops. Now some nurseries are installing these systems on grand scales.

Holloway Tree Farm in Leesburg, Fla., developed a flood system designed to irrigate half-acres at a time. The system captures rainfall, irrigates water with a fraction of what is used in a traditional overhead system, and yields no irrigation runoff.

For developing the system, Holloway Tree Farm was awarded multiple environmental awards. The company is also marketing the system through its sister company Holloway Irrigation Systems.

Yeager explained a new container-production system he's been developing with Dorota Haman, also a professor with the University of Florida. The system involves growing plants in a rainfall-collecting box that irrigates plants via capillary action.

Water is kept in a reservoir under the pots, which take up the water with a wicking action. Advantages are that the system waters plants only when needed, and little additional water is required to keep the system going. In Florida trials, additional water needed to be applied to reservoirs just four to 15 times per year.

The university is seeking manufacturers to make this system commercially available.

◆ **For more:** Tom Yeager, University of Florida Department of Environmental Horticulture, P.O. Box 110670, Fifield Hall, Gainesville, FL 32611; (352) 392-1831; fax (352) 392-3870; tyeager@mail.ifas.ufl.edu. Holloway Tree Farm, 2620 Griffin Road, Leesburg, FL 34748; (352) 365-1414; fax (352) 728-0568; www.hisinc.biz.

CHALLENGE NO. 8 Transportation

Laws change and alternatives await



With most U.S. nurseries servicing interstate markets, and even selling plants coast to coast, getting crops to market can be a major ordeal. With new laws changing the shipping landscape and a perennial shortage of trucks in parts of the United States, NMPRO readers voted transportation issues the No. 8 challenge facing the industry.

But even more change may be coming. The hours-of-service regulations enacted in January 2004 by the Federal Motor Carrier Safety Administration may change in September. On July 16, 2004, the U.S. Court of Appeals for the District of Columbia Circuit vacated the regulations stemming from a lawsuit.

The plaintiffs in the lawsuit were various safety groups who claimed the hours-of-service rules didn't consider driver health, and the court agreed. The FMCSA has until Sept. 30, 2005, to address the court's concerns through new rulemaking or on appeal, said James Lewis, FMCSA spokesman.

Current rules apply to drivers of commercial vehicles carrying freight with a gross vehicle weight of 5 tons or more. Long-haul drivers may drive 11 hours after 10 consecutive hours off

duty. Truckers may not drive after being on duty for 60 hours in a seven-consecutive-day period or 70 hours in an eight-consecutive-day period. This on-duty cycle may be restarted only after a driver takes at least 34 consecutive hours off duty.

In the Pacific Northwest, where growers face an almost annual shortage of trucks during the primary spring shipping season, a group has formed to discuss

new options, said John Aguirre, Oregon Association of Nurseries executive director. The options range from forming a cooperative that would facilitate shipping to using rail.

"Between 50,000 and 60,000 truckloads of nursery product leave our state every year," Aguirre said. "But we're a fragmented industry made up primarily of smaller businesses that don't have full-time people devoted to arranging shipping."

But there are a few areas our industry can improve that would help the shipping situation and make our industry more attractive to shipping companies. By speeding loading and unloading processes, we make turnarounds quicker, Aguirre said. By having fewer drop offs and pick ups per trip, we also save time.

◆ **For more:** FMCSA, 400 Seventh St. S.W., Washington, DC 20590; (800) 598-5664; www.fmcsa.dot.gov. Oregon Association of Nurseries, 29751 S.W. Town Center Loop W., Wilsonville, OR 97070; (800) 342-6401; fax (503) 682-5099; www.oan.org.



Curtain sidewalls on trailers can reduce loading and unloading time.