Flood benches have allowed F & B Farms & Nursery to dramatically reduce their water use while ensuring the highest quality plant material. PHOTO BY CURT KIPP

Preserving precious water

Growers put a variety of practices into place to save this valuable resource

By Elizabeth Petersen

"There is no more important component for growing plants than management of plant soil-water through proper irrigation," said Val Tancredi, OAN Life Member and Willamette Chapter president.

After a 40-year career designing irrigation systems, Tancredi knows a thing or two about the challenges and solutions to water use for the horticultural industry.

Both over- and under-watering cost growers money, Tancredi said. Every grower can benefit from customized irrigation systems and finely tuned management practices, if their goal is to save water and fertilizer, improve the quality of crops and cut costs.

"Irrigation systems with high application uniformity enable the grower to optimize soil moisture content," Tancredi said. He recommended growers seek professional assistance with design, installation, training, retraining, guaranteed performance and follow-up.

The irrigation system is an important investment and not a place to cut corners, Tancredi said. Growers cannot afford to have the irrigation system fail. Professionals who understand the challenges and options to solve them are best able to recommend the most effective and efficient choices for the crop.

"A grower needs a robust, engineered system with reliable equipment to obtain the highest application uniformity and efficiency," Tancredi said. "Managing the system and focusing on scheduling is drop dead important for all systems."

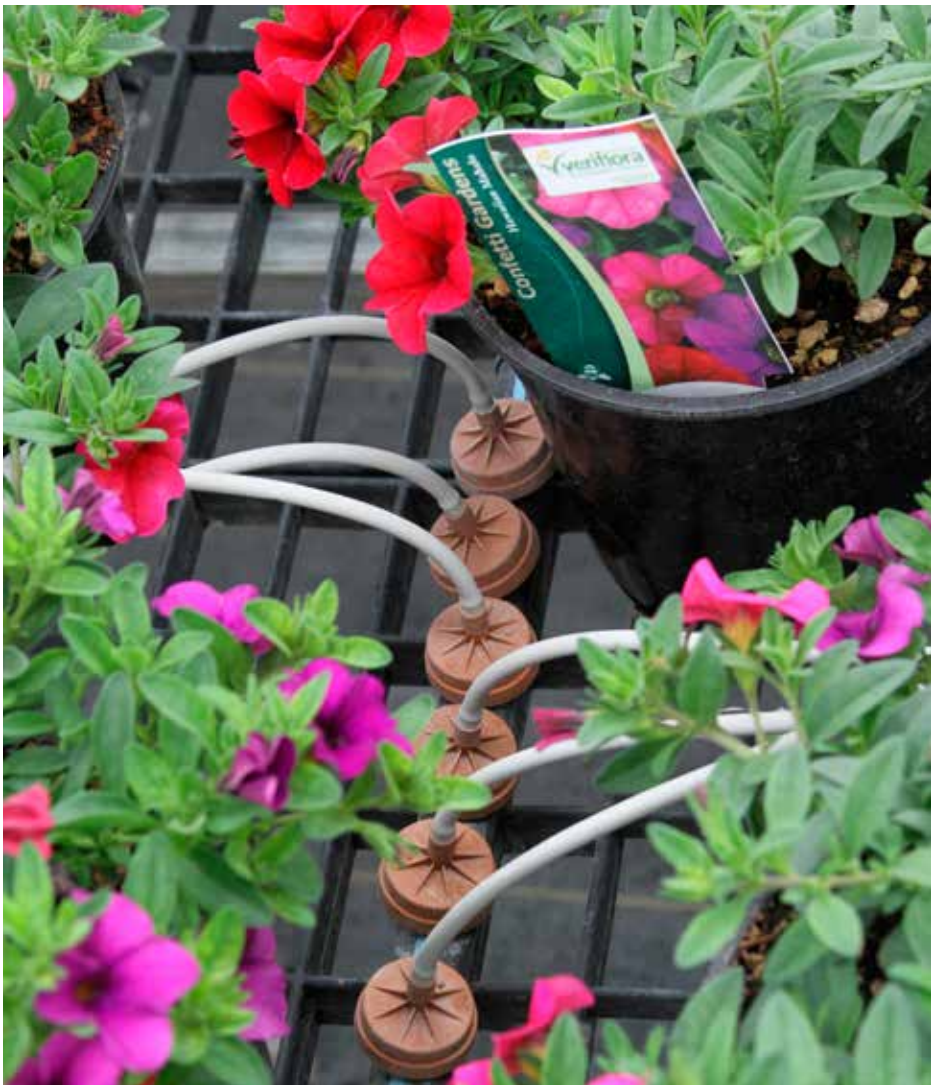
Reclaim and recycle

Tom Fessler, co-owner of wholesale ornamental grower Woodburn Nursery & Azaleas Inc., knew as early as the 1980s that he did not have enough water on the property for the extensive growing operation. The nursery had only limited water from on-site wells and the nearby Pudding River. Over the years, Fessler has made it a priority to become adept at managing water use.

All large nurseries in Oregon must deal with the challenge of reclaiming their water. All operations over five acres are required by the state to reclaim water runoff from May to October.

Adding drain tiles and retention ponds to capture and recycle water are now the order of the day. Recycled water that has been treated for disease before reapplication helps Woodburn and other nurseries get the most use from their water.

Alpha Nursery in Salem, Oregon, reclaims about 80 percent of its water, explained general manager R.J. Tancredi. Using and reusing only well water, Alpha reclaims water with tiles beneath all driveways and beds, moves it to a collection pond and treats it before repeated reapplication. "We wear out our water," he said. ▶



The drip irrigation system at F & B Farms & Nursery has been certified by Veriflora, an independent third-party agricultural sustainability certification and eco-labeling program. PHOTO BY CURT KIPP

Reduce

Besides reclaiming its water, Woodburn Nursery shifted its operation from primarily field-grown, B&B stock to container-grown product. Doing so allowed the use of drip irrigation, a highly efficient way to apply water. Today, Woodburn Nursery has 185 acres of pot-in-pot production and continues to add more.

New computerized sensors accurately judge the need for water and control the pumps and valves that distribute water to its pot-in-pot containers, hanging baskets and larger plants.

Drip irrigation is also an important component of irrigation at wholesale grower F & B Farms & Nursery in Woodburn, Oregon. Working with the Veriflora program, which certifies agricultural sustainability, F & B installed a drip irrigation project that "not only saved water and improved plant quality, it reduced the amount of runoff in our outdoor production by more than 95 percent," owner Fred Geschwill said.

"Most of that runoff would have contained fertilizer salts in the past," he pointed out. "We now use 90 percent less fertilizer, and almost all of the fertilizer applied is used by the plants. This is a huge savings and leads to a better plant and a healthier environment."

For certification, the Veriflora program requires producers "to conserve water through the use of effective water delivery systems, conservation and monitoring methods and technologies, and the institution of water quality management practices to protect the quality of these resources."

Certification assures consumers that products have been grown with concern for sustainability.

When F & B put all hanging baskets on drip, Geschwill observed an impressive drop in water use. In 2013, the nursery used a total of 5.6 million gallons of water; in 2014, its water use dropped to 4 million gallons.

"This was a $24,000 project," Geschwill said, "but the savings in water, fertilizer and time, along with quality improvement, will be well worth it moving ahead."

For the last four years, F & B has used a different watering method to finish geraniums: flood benches. Water floods benches of the potted plants to a depth of one inch. After seven or eight minutes, the pump is turned off and the water drains back into a holding tank. Doing so not only saves water, Geschwill said, but it also keeps water off the tops of plants and is "more forgiving than drip for fertilizer management."

An independent third party, SCS Global Services, administers and verifies the standards that Veriflora sets. For growers to earn certification, SCS is on-site three of every four years to review water and chemical use at the nursery. It reviews grower water usage records and rectifies that with actual water meter readings. It also examines chemical use records and audits what is on-hand and what has been purchased.

Woodburn Nursery uses overhead watering, but uses cyclic irrigation to save water. Cyclic irrigation is about applying water in shorter, more frequent periods. The system, which is run on controllers that can be adjusted every day to account for weather conditions, maximizes the use of water, uses less water than applying it all at once, and reduces run-off.

Reprogram

Alpha Nursery installed Osmac, a golf course operating program made by Toro, in the mid-1990s to facilitate watering efficiency at the 150-acre nursery.

R.J. Tancredi likened the program to a simple paging system. The wireless system works with a computer in the office so he can adjust every section of the irrigation system as needed for current conditions. It runs a variable-speed drive pump set on time clocks to deliver needed water.

Part of the program runs spray sticks and micro-emitters, which put the water right where it is needed, primarily in the pot-in-pot section of the nursery. Another part of the program runs rotating-type impact sprinklers in a ▶

different section. These sprinklers on risers deliver a more gentle flow, so they are run more frequently with less intensity, which yields better results. They are more time-efficient and produce less runoff, according to Tancredi.

Updated over the years, the program is so useful that it allows the operator to open and close flat roofs as needed, too.

F & B grows a large assortment of different items, and about half of them are hand-watered. To waste fewer resources while hand-watering, the grower has adopted a detailed set of plant water requirements to control water usage. Plants are arranged by specific cultural needs defined by the appropriate soil moisture level, and the staff is trained to water each plant correctly. This method of coding and arranging plants according to water need was developed and encouraged by Ball Horticultural, which trained the employees in utilizing the system.

Each plant is given a number of codes before it is planted, Geschwill said. The codes correspond to best growing practices to produce the highest quality plants. The watering codes range from one to five. A code of one is assigned to a drought-tolerant plant that wants very little, if any, free moisture in the soil; on the other end of the spectrum, a code of five is assigned to a bog plant that must be wet at all times.

This numbering system, which has been in the industry for a number of years, allows the grower to group plants with others that have similar needs, and post crop cards so every employee knows how to water that crop.

"This comprehensive set of water requirements has allowed us to produce higher quality plants with less loss," Geschwill said. In fact, in about two years, F & B Nursery has been able to lower its water "dump" from a double-digit number to about 6 percent.

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