

Drip gets a D

The report card's in: Many landscape professionals just don't understand how to use drip irrigation correctly. A new guide from Phoenix may get users back on track

BY DON DALE

At one level, drip irrigation is so simple it almost seems a freebie in life. Just install it, attach it to a timer and everything will be all right. But appearances are deceiving, and drip is no exception. In the home of drip — Phoenix, AZ — landscapers and homeowners are getting it wrong.

"What we found out shocked us," says Andy Terrey of a 1997 study the University of Arizona and the city of Phoenix did on dozens of landscapes



Andy Terry, city of Phoenix engineer, conducted a study on drip and found landscapers sorely lacking proper skills in design, installation and maintenance.

and "thousands" of drip emitters around the Phoenix area. "We were seeing applications efficiencies of 20% to 30%." That meant that only one-

quarter of the water applied was being used by the plants. Drip is often touted as being up to 90% efficient in some applications.

Some of the systems had been set up by homeowners, but most had been installed and were maintained by landscape contractors. That meant that drip irrigation systems around the city were being designed, installed and maintained improperly in many cases by the same professionals thought to be the most knowledgeable.

"We audited about 40 sites," says Terrey, an agricultural engineer who headed up the study and is now manager for the city's water recycling

Paul Dickey, a Phoenix irrigation consultant and former landscape contractor, works on drip lines at an upscale Scottsdale home.

program. He noted that almost all cases had improper drip placement and timing. "Smaller plants were vastly overwatered, while the trees were underwatered."

Most plants looked fairly good to the naked eye, and most landscapers on the sites would say everything was being watered okay, but they weren't. The sites included residences, parks, schools, commercial properties, streetscapes and even city-maintained areas. Hardly anyone did a good job, according to the study.

Mistakes contractors make

Key problems the Phoenix-area researchers found were:

- systems that landscapers neglected on the assumption that the drip looked after itself;
- over-pressurized systems;
- badly mismatched emitter-to-plant situations;

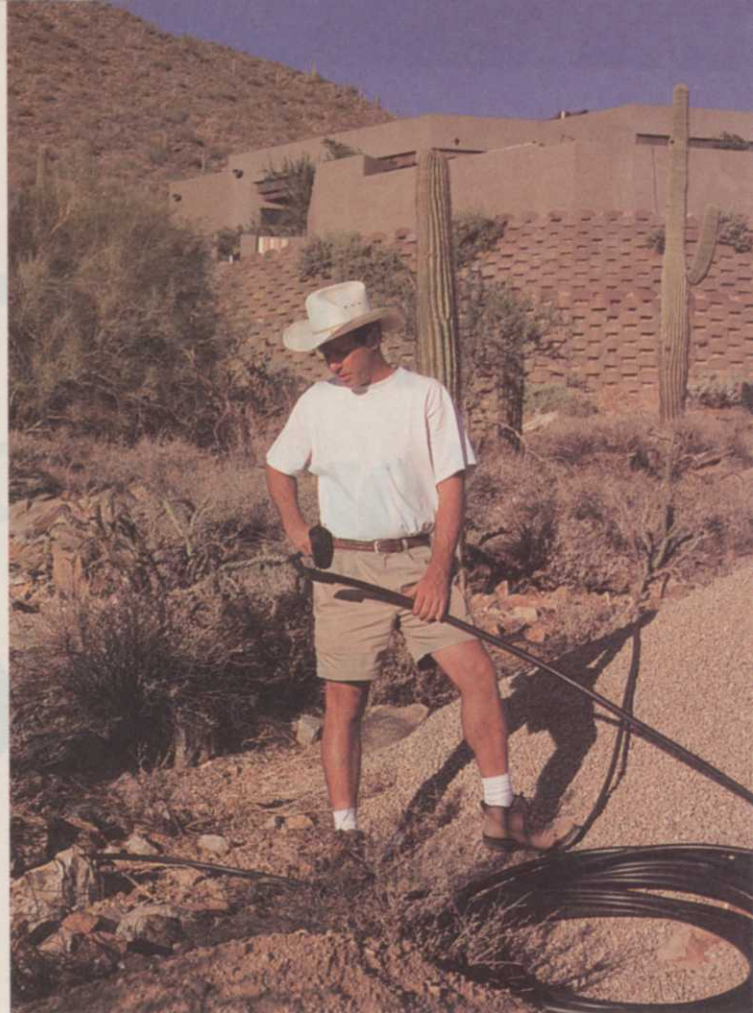
- systems where controllers were not working; and a
- tendency to over-water in many cases, wasting water.

"You could go out to some street landscapes and all the groundcover and shrubs would be dead, with the water still running," Terrey recalls. One xeriscape demonstration garden had major problems.

"We decided we needed to provide more information to the Green Industry," he says, noting that the problem isn't with drip irrigation but with the way it is implemented. "The best way to irrigate desert landscapes is with drip."

Terrey and a group of irrigation designers, landscape contractors and government agency representatives created guidelines in 1998 for landscape drip systems (see sidebar below).

Paul Dickey was on the steering committee that formulated the guidelines. A landscape



contractor at the time, he is now an irrigation and outdoor lighting consultant who says that contractors get confused by how diverse drip systems are from one job to another.

"It varies so much," he says, noting that most landscapers have trouble working with their first few drip systems. "They

usually don't do their homework."

Dickey points out that this kind of advice is not available at most "big-box" home improvement stores, many of which don't carry the right equipment for drip jobs. Consequently, it's hard for both design and main-

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Drip guidelines from the experts

Andy Terrey took the data from Phoenix's 1997 study and formed a committee of landscape contractors, irrigation designers and government agencies to develop guidelines for landscape drip irrigation. By late 1998, they created their own booklet, "Guidelines for Landscape Drip Irrigation Systems," which gives abbreviated but orderly information on materials, design, installation, maintenance and repairs. It also offers tips on handling water schedules and promoting conservation, supplemented by illustrations on how to set up valve boxes, filters, regulators and backflow prevention assemblies.

"We also included many handy tips," Terrey notes, including drip wetting patterns for different soils and a formula for measuring emission uniformity and water use with kitchen measuring cups (for instance, X cup of water in one minute equals one gallon/hour).

The booklet is available from the Arizona Municipal Water Users Association and is free on the Internet at: www.amwua.org. To download, click on "Xeriscape Programs," then on "Guidelines for Landscape Drip Irrigation Systems."

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New to drip? Start out the right way

Former landscape contractor and current irrigation consultant Paul Dickey recommends that drip beginners use the booklet, "Guidelines for Landscape Drip Irrigation Systems," and other resources for first drip jobs because they cover the basics. He also recommends that newcomers:

- determine soil type and percolation rate up front,
- use different color drip lines for different sectors of big jobs to eliminate confusion,
- use only one-gallon emitters to minimize capacity differences,
- add extra drip lines to meet specific plants' irrigation needs,
- make a good map of all drip lines on site and
- return to the job repeatedly to refine system and controls.

Dickey advocates modifying the Phoenix guidelines and to suit the climatic and horticultural characteristics of your geographic region.

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tenance landscapers to find good advice.

Factors like soil type and elevation change can affect a drip system, but Dickey says that controllers may be one of the most tricky aspects. Each plant type must be assigned to a different drip line, and the number of emitters can vary. Therefore, landscapers need to think through the controller programming.

"We look at what we can group these plants into for each controller," Dickey says of setting controller patterns, which requires understanding plant needs and emitter capacity, as well as the frequency with which each pulse goes out. Some desert trees may need irrigation once a month; others once a day.

Terry notes that controllers

played a big part in the inefficiency his study found in Phoenix. Lax management resulted in clogged emitters and neglected controllers. "About 20 to 30% of the irrigation controllers I opened were blinking," he says. "They weren't irrigating on a schedule but on the default schedule, or not at all."

He says irrigation managers should also know the amount of water required by particular plants in a locale. He used that information when he checked irrigation efficiency in the study.

High-end troubleshooter

"I get a lot of calls to visit jobs that are botched," says Dickey. He has several high-end jobs in Scottsdale and knows that additional problems

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Dickey adjusts drip schedule at the controller, where many drip inefficiencies originate.

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can multiply rapidly when something goes wrong with \$250,000 landscape jobs.

His specialty is design, which can be a critical, time-consuming process. He tells of

a house he is currently working on in Scottsdale that he first visited three years ago. To build an understanding of how the system works, Dickey recommends making the property owner aware of the drip sys-

tem's design and operation, as well as walking any maintenance contractors through the system for an orderly "handoff."

"All that is really crucial," he says.

Terrey says that although the Phoenix booklet is not yet part of the city's building code and is not legally binding, it is the best source available for drip system design and installation in the area.

"These suggestions have been approved by the Arizona Landscape Contractors Association,"

he says. "We had a lot of people say, 'I'd do it right if I just knew how.'"

Many contractors have received the guidelines favorably, Terrey says. He believes the booklet can save property owners money by getting a system done right the first time.

"You'll have a better landscape," he adds.

— *The author is a frequent contributor to Landscape Management based in Hollywood, CA.*

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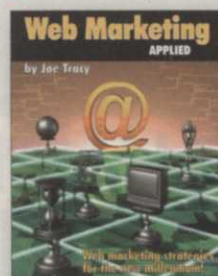
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