



"Very short putting greens are like sidewalks," reminds David Fleming. Irrigation cycles must be timed accordingly.

SMART WATER

As irrigation systems near perfection and water use is regulated, 'systems management' takes on greater importance.

By Terry McIver, associate editor

"You can't just turn on a controller and say 'go ahead and water.'"

The words of golf course superintendent Brad Adams reflect what more professionals are learning about irrigation systems: management is everything. In today's world of tight-fisted water restrictions and sprinkling bans, the uniform and conservative use of water is increasingly important.

Bruce Augustin, Ph.D., of Lesco Inc., says water restrictions seem inevitable this year. He's concerned that irrigation systems that were originally intended to supplement Mother Nature have become the entire source of moisture.

"Most homeowners don't do anything drastic (to contribute to con-

servation)," he says. "As a consequence, they have in-ground systems that are rarely reset or calibrated. Time clocks, for example, will be set to come on every day, rather than perhaps every third day."

Golf course superintendents are also learning from experience. David Fleming, superintendent at Singing Hills Country Club in El Cajon, Calif., feels that supers sometimes find themselves putting water down in too many long cycles. He has tried to shorten watering cycles to allow for more soak time, taking into consideration the grass's height.

"Very short putting greens are almost like sidewalks, and the water tends to run off very rapidly," Fleming observes. "But for longer turf, you can go to eight or nine minute cycles."

Adams, over at Rancho California Country Club, thinks that most of the golf industry is "pretty much on the same wavelength."

"It's been proven over a number of years," says Adams, "that the more uniformly water can be put down, and the less water that can be put down, you will have a better quality turf and playing surface."

Irrigation system manufacturers second the notion of uniformity and control.

Ken Kline, manager of customer development for Toro Irrigation, believes one of the key factors relative to proper water distribution is managing all the variables.

"Control is one of the key things the industry is working on," says Kline, "and it's one of the things that

Education soaks in

A major element in irrigation systems advancement has nothing to do with valves or pumps or evapotranspiration (ET) rates, at least not directly. More companies and associations now stress education as a key element in irrigation system efficiency.

Toro Irrigation's Ken Kline says the efforts made by manufacturers and the industry to educate people who are in the business of designing and installing irrigation systems has increased. He cites Toro's Certified Contractor's Program and the Irrigation Association's Certified Designer Program as examples.

The main purpose of education is to raise the professionalism of the entire industry.

"The principles of good design have been known for a long time," says Kline. "The current efforts are intended to disseminate that information to as many people as possible."

Many manufacturers' educational programs come into play locally. "Toro University," a week-long training session, gives distributors the tools and expertise to conduct training in their local areas.

—Terry McIver □

makes this industry so interesting and kind of difficult to be in."

There's always plenty of room for improvement, according to Ed Hunter, founder of Hunter Industries, "because uniform application of water is not as simple as you might think."

Hunter, one of the industry's irrigation pioneers, believes proper irrigation depends on even distribution at rates the ground can absorb.

"If you apply it too rapidly, or at too high a precipitation rate, the water will run from the high to the low spots, destroying the uniformity," Hunter notes.

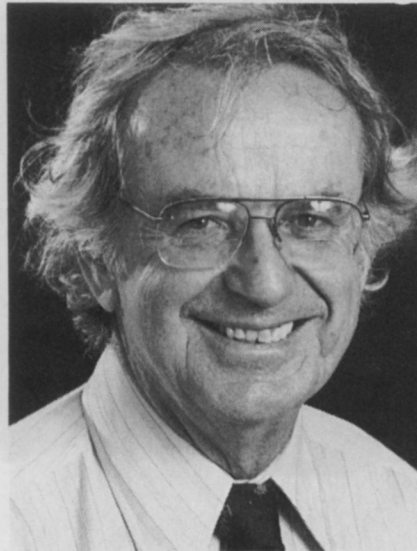
Hunter says sprinkler systems which operate at lower pressure are ideal, because they result in lower energy costs.

Gard Crow of Hunter told *LANDSCAPE MANAGEMENT* that even before the drought shocked everyone back to reality, the company always believed in products that perform at low pressure and at low application rates.

"Apply water as uniformly as possible at a rate more in line with soil intake rates so we can minimize waste," says Crow. "We (the green industry) suffer in times of water shortages, more so than car washes.

"We are of the opinion that you can have computer control, weather stations and moisture sensing devices, but if you don't carry that through to the most important component part—the sprinkler—all the rest are just bells and whistles. If the sprinkler is not applying water uniformly, what are you going to do as the manager of that system?"

The well designed, installed and



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managed irrigation system should:

- use that most valuable resource—water—most efficiently;
- be flexible in performance, with a variety of nozzles to adapt to conditions; and
- be able to operate at lower pressure. (Researchers are finding that low pressure means less wear and tear, fewer leaks and breaks, and less energy required to run the system.)

"Every pound of pressure you use over what you actually need represents one percent more energy cost," says Fleming.

He has brought pumping energy costs at his 54-hole resort down from \$140,000 to \$74,000 by working on pressure efficiency, pump efficiency

and scheduling. "Good equipment allows you to do that."

Fleming likes the Rain Bird Flo-Manager for ease of pressure control. It manages the flow demand placed on the pumping system while maintaining flow rates throughout the course to be consistent with piping network capacities.

Monitor the situation

Bill Pogue is president of The Irrrometer Co. of Riverside, Calif. He believes soil moisture sensors, which have been used mostly by the agricultural segment, will be applied more to golf courses.

"Every year a few more superintendents buy manual sensors at the GCSAA show," Pogue observes. "Basically, they just look at them twice a week to determine if the soil is too wet or too dry.

"We're doing some engineering and design work right now to refine an electronic sensor to be hooked into an automatic irrigation system. This will let you control irrigation with soil moisture measurement technology without having to maintain it."

Pogue agrees that poor system maintenance is one of the biggest problems in the irrigation industry.

"Maintenance is critical to efficiency," he insists. "Water is conserved through proper scheduling, but you've got to start with an efficient system."

Toro Irrigation's new Soil Moisture Control System is designed to tell the controller when to stop irrigating rather than when to start. A ceramic soil sensor is made to dehydrate at a pre-set tension level close to the soil's moisture capacity.

Man and machine

"In actual practice, we've found that controllers are seldom adjusted because many managers lack the personnel or expertise to re-program them to follow precise changes in plant water use," says Steve Swerton, Toro's director of sales and customer satisfaction. "In most cases the tendency is to over-irrigate since green industry managers are judged more on plant appearance than water savings."

As irrigation technology continues to reach new heights of sophistication, the human element will still remain.

"Computers were never intended to replace man entirely," says Kline. "But computers give us more time to manage. There will always be a need for a manager, someone who is aware of the variables that exist in a landscaping situation. There will always be a need for that input." **LM**