

HIGH-TECH OVERLOAD

Computerization of the irrigation industry is here to stay. Now it's up to the individual companies to educate their clients on the variety of new technology.

by Jerry Roche, editor

Development of new technology...computerized controls, plant stress monitors, more efficient nozzles...this is the future of the irrigation industry as the years wind their way toward the millennium.

Of course, whether the landscape manager is ready for this high-tech overload is another thing.

"I've found that 70 percent of the market doesn't go for computers yet," notes Chuck Hoover of Irri-Trol, Valencia, Calif. "Six, seven, eight years from now, though, people coming out of schools will want to know how they can program their computers."

Adds Don Cooper of Weather-matic, Garland, Texas: "You take the average Joe and put a computer console in front of him and it's going to turn him off. He doesn't understand it. But with proper instruction, the digitals are very easy to use."

Hoover says that when the big changeover from mechanical to digital does come, "it'll come so fast that if people aren't prepared for it, it will go right past them."

So the irrigation industry is ahead of everybody? Maybe, maybe not.

"You could look at it that way," says Dave Davis of Buckner Irrigation, Fresno, Calif. "Or you could look at the new technology as being too late. If it would've been around 20 years ago, we wouldn't have to be so stingy (with water) today."

Also of concern to the industry, then, is conservation of water and energy, each of which has been in short supply at some time during the last 15 years.

Saving water

"I have a personal challenge to all irrigation equipment manufacturers," said Dan Heiny of The Irvine Company, Irvine, Calif., in the August, 1984, issue of *WEEDS TREES & TURF*. "That is to develop a low-volume pop-type spray head."

Such a system has been developed but cost is still high, notes Gary Panuzzi of Richdel, Carson City, Nev. But they will come down. "It's like a watch you can buy \$3. Everybody will



David Cordillo of Hydro Systems, Warminster, Pa., says there's an inherent evil with throwing water up in the air. Nonetheless, above-ground irrigation remains extremely popular.

be able to afford it."

But low-volume is not the issue, some other manufacturers claim.

"Application rates are," says Rick Robins of Toro Irrigation, Riverside, Calif.

"The main thing is to apply the water in the right spot at a rate slow enough so the soil will absorb it," says Robins.

The key to slow application is the sprinkler head; the key to location is the controller.

"You use a controller that breaks up application times," Robins continues. "It doesn't make any difference whether the controller is mechanical or solid state. Even though the solid state units can make applications of less than one minute in duration, some mechanical clocks have more start times—23 or 24—compared to the four or six of solid state clocks."

One way to save water is with sub-surface irrigation, which is especially effective in convoluted areas and on ornamentals.

"There are inherent evils of throwing water up in the air," says David Cordillo of Hydro Systems, Warminster, Pa., extolling the virtues of his company's sub-surface drip system. "Sub-surface is the irrigation system of the future."

The Golf Course Superintendents Association of America is trying to develop ways to cut water usage in half, a goal that Dr. James Beard of Texas A&M University thinks is attainable.

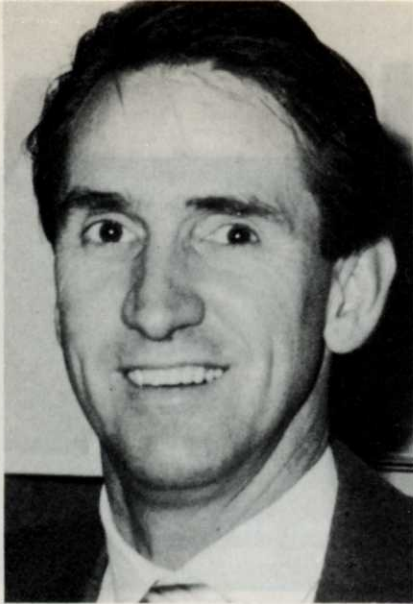
"The talk is that there's a trend toward controlling water usage," notes Cooper of Weather-matic. "The professional irrigation contractor is adhering to that talk. But we've got some contractors out there that definitely are not professional."

"As a company, we are very cognizant of the water shortage. We as an industry have to recognize that water is a finite resource. If we don't, we're going to be out of work."

Monitoring plants

Efforts are being made to avoid apply-

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Irri-Trol's Chuck Hoover says computerized irrigation systems will be the norm in the future.



Ron Zwiebel of Green Care, calls irrigation installation a "very viable add-on service."

TROUBLE-SHOOTING VALVE MALFUNCTIONS

Valve malfunctions are probably the number one cause of headaches and stress among contractors who install sprinklers for a living.

"There's nothing more aggravating than digging a valve out of the ground to figure out why it won't open, why it won't close or why it weeps," say irrigation service reps.

In an effort to alleviate some of those problems and show professionals what to look for when a valve won't function properly, here is a list of the most common problems and their remedies.

Valve won't open

1) First, make sure the water is turned on.

2) See if electricity is reaching the coil. If not, there may be a problem with the controller or breaks in the electrical line. Check for this with a voltmeter across the two field wires.

3) If the coil is receiving current, remove it and see if the plunger moves into the housing of the coil. If not, replace the coil.

4) Make sure there is no downstream blockage in the communication port from the top side of the diaphragm into the coil area or from the discharge seat through the cap and body to the downstream of the valve. To check for these problems, remove the coil and inspect the area for debris and remove any particles

with a fine piece of wire.

Valve won't close

1) Make sure nothing is clogging the diaphragm port hindering water from metering to the top. If debris is spotted, flush the port.

2) Make sure the solenoid spring is not missing or debris is not restricting the plunger. To check for this, remove the spring; if the plunger hangs in the housing, flush with water.

3) Check to see if the diaphragm is damaged. If it is ripped or pieces are missing, replace the diaphragm.

4) Check for external body leaks. This may mean a damaged or missing O-ring or loose screws. Check the manual bleed screw. If it is left in the open position, it will allow water to bleed out. To prevent this, tighten the screw. In addition, the flow control knob should be adjusted to allow maximum performance of sprinkler heads.

Valve weeps

1) Check to see if the diaphragm is seated properly on the valve body. Inspect to see if any debris has accumulated, then flush.

2) Check to see if the body seat is damaged. A damaged seat requires body replacement. □

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ing water when the plant doesn't need it, thus saving the energy it takes to run irrigation equipment, not to mention the water itself. To that end, sophisticated plant stress monitors are being manufactured.

One major company will soon be marketing a portable monitor that calculates plant stress as an early and accurate means of determining irrigation requirements. It senses temperature, solar radiation, humidity and air temperature readings, runs them through a microprocessor, and provides a digital read-out of irrigation needed.

Fully automatic control systems are also saving water and energy.

"With these, you can input the weather and the controller will calculate evapotranspiration rate and generate times for each zone to be irrigated, based on the product, the nozzle and so on," says Toro's Robins. "It runs on the basis of what the soil and plants demand. It's a very expensive system, but its price will probably come down, in time."

Dr. Bruce Augustin of Lesco Inc. and Dr. Charles Peacock of the University of Florida once did some field tests concerning irrigation. They discovered (and wrote in their newsletter):

"We can grow turf with less water than many people think. By exploiting rainfall as much as possible, we can reduce the amount of irrigation that is applied to turf. Also, by more carefully managing the irrigation, we can reduce nitrogen leaching and get better results from the cheaper, water soluble sources of nitrogen."

Homeowner market

Granted, there will always be a market for irrigation equipment among users of high-maintenance turf like golf course superintendents. But more and more, irrigation suppliers are seeing a boom in the homeowner/residential market.

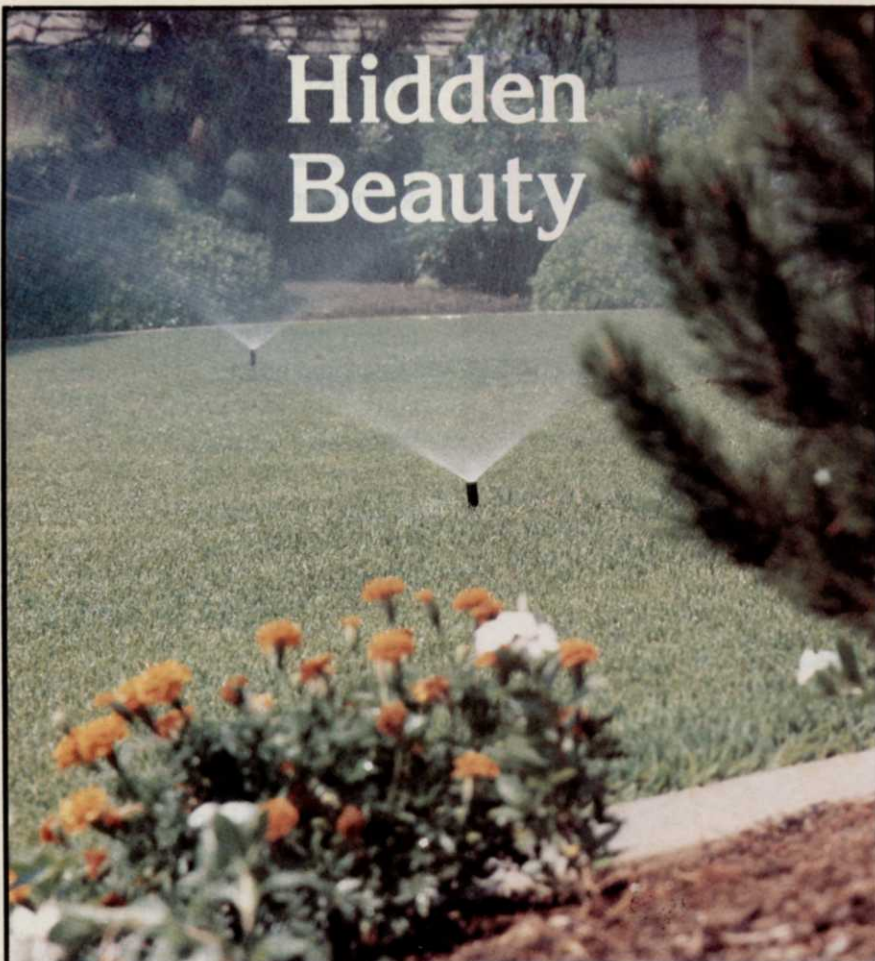
Homeowners took the a step toward beautiful lawns 15 years ago when the lawn care industry first boomed. Lately, homeowners are going one step farther with the installation of sophisticated underground irrigation.

Lesco, Inc., Rocky River, Ohio, seeing this trend, recently opened an over-the-counter irrigation equipment store. Bob Hobar is its director.

"There is a marketplace in the residential sector. That's the concept our store is based on," Hobar contends.

"If you went in as a landscaper and sold a lot of plants and shrubs and then the homeowner didn't water it, that homeowner would be wasting

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IRRIGATION from page 62



The traditional irrigation head.

money. The point is, if a homeowner is spending thousands of dollars on landscapes, why not spend hundreds on irrigation?

"Lots of landscape architects are putting irrigation specifications right into the design now," says Hobar.

'There are inherent evils of throwing water up in the air. Sub-surface is the irrigation system of the future.'

—David Cordillo
Hydro Systems
Warminster, Pa.

In the South, irrigation installation is catching on. Says Ronnie Zwiebel of Green Care, Birmingham, Ala. (a chemical lawn care operation):

"We've added irrigation installation, and as long as we can figure out how to get the system in the ground, we are by all means going to pursue it. It's a very viable add-on service, but you almost have to have two very separate profit centers."

Zwiebel notes that management, equipment, and labor for irrigation operations is completely different than its counterparts in the chemical lawn care industry. But the market is nonetheless a money-maker.

"We have managed as an industry to bring the cost of owning an irrigation system down to where the average homeowner can afford one—rather easily," adds Weather-matic's Cooper. "That represents a tremendous growth market, mainly because of refinements in our industry's own capabilities."

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