The touch of a keyboard in the office has replaced the turn of a controller dial out on the fairway at many golf courses, and the trend should continue as water wars limit water availability and increase costs.

Personal computers (PCs) — teamed with weather stations — have revolutionized irrigation systems: "Computers give you the highest possible level of control, which is critical when you're trying to reduce the amount of water you need to give your customer what they demand without wasting water," said Ray Davies, superintendent at Virginia Country Club in Huntington Beach, Calif., and president of the Golf Course Superintendents Association of Southern California.

In Southern California, he said: "Everybody who can afford it is (installing a computerized system). Irrigation systems cost so much right now that if you are going to install one, you're a fool not to put in a computer."

Even superintendents in unlikely areas are using computers to confront the problem of low water supplies. "We're on wells here, so we don't like to waste any water if we can help it," said Ken Wright, superintendent at Devil's Pulpit in Caledon, Ontario, which gets a substantial annual rainfall.

A computer's "ability to control the amount of water you use is definitely an asset, especially if you're in an area where you're restricted in the volume of water you can use," said Wright. "You don't waste water. You can control it to the minute, where with a lot of electro-mechanical systems you can't do that."

Portland (Maine) Country Club superintendent Pat Lewis expects a huge reduction in manhours devoted to irrigating after a computerized system is installed in fall 1991. He said while most crews probably consume about 80 hours a week irrigating courses with manual or electro-mechanical systems, he will save at least 200 manhours a week. "That's equivalent to five full-time people — five I can better use doing other jobs," he said.

Lewis added he anticipates major energy savings, partly because the computer will meter the water so well that he won't need to run a pump to irrigate some of the course.

John Mervis, an irrigation consultant and president of Clubmaster Software Systems in North Palm Beach and Florida, said of the impact of computerization on irrigation systems: "Statistically it gives the golf course superintendent more feedback than the old syringe system. He can now tell what the water flow was, how long it was on; if a satellite failed... "With the old syringe system, you'd tell it to irrigate and never know if it did because lightening or ants might short-circuit a controller. Sometimes the course burns up before you find out the satellite doesn't work."

Computers and satellites are going to be reverse-compatible when one or the other is upgraded to a new version? No Yes Yes Yes Yes Yes

Must the computer be an IBM-PS2 or can it simply be IBM-compatible? Compatible Compatible Compatible Both

Must superintendent buy his computer from your company? No No No No

What would be the cost to install the system at a new golf course that has 5 weather stations, is 6,500 yards long on 125 acres? $50,000-$200,000 $100,000-$140,000 $200,000-$55,000 $60,000 $80,000 $800,000

How many service centers does your company have in the U.S.? 70 900+ 900+ 100+ 3,000+ 1,000+ 55

What is your hardware guarantee? 2 years 1 year 1 year 1 year 3 years 1 year
Irrigation

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courses, although his headquarters doesn't learn about many of the "redos," which are handled by distributors.

"The real motivating force to buying these systems is the superintendent coming out of the turfgrass schools and their technical training," Thompson said. "In the old days someone was the superintendent because he knew how to work on the pump — if they had irrigation — and the equipment; and they had to be an arborist, an entomologist, a pesticide applicator, turf manager, personnel manager, public relations expert. The superintendent is terribly underrated.

"Now you have guys coming out of college to be a superintendent, and they are well versed... Usually they've spent time in their youth working on a golf course. They've been exposed to manufacturers. And they've had the technical, academic part of it. They realize their livelihood can depend on the computer... If your irrigation system doesn't work in Arizona you don't have a job. You're feed."

Rain Bird's Christie said: "It's almost to the point that you've got to have one (computer-controlled system). We're finding that superintendents are very effectively using these systems. The older superintendents as well as recent graduates are learning how to operate the program and the system. The programs are all menu-driven, and simple to use."

Playing conditions

Keeping golfers happy is the key to keeping a greenkeeper's job.

Virginia CC's Davies said computers help satisfy the club members by making it possible to create "the best possible playing conditions for the golf course — not too wet and not too dry. I'm not saying I'd use less water. But I'd have better distribution."

"We're always on the dry side. Our players do not want wet grass. They want green grass that's dry and that's a pretty tough order. Nothing will draw criticism more than a wet golf course."

Buckner's Thompson said a computerized system can also save tremendously by determining the size of pipe to install in the ground. Smaller pipes cost less, need less maintenance and undergo less wear and tear, Thompson said.

"The industry average is 25 percent energy saving using a computer-controlled system versus a non-satellite or mechanical system," Thompson said.

Effluent

The growing use of wastewater means more computers at courses.

"If you're using effluent you usually have to strictly control it," Thompson said. "Besides applying it when it won't drift, you have soil-loading constraints that the waste engineers specify.

"You're not just replenishing the water lost through ET. With efflu-
Irrigation

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to a Maxi 5."

Manufacturers' list prices on computer control systems range from $17,000 to $28,000, but they normally sell for 40 percent less, said one industry source. The price usually covers the software, support, training, and the interface that allows the computer to talk to the satellites.

The satellites cost about $3,000 per unit. An average 18-hole course on the East Coast will install 12 to 15 satellites while a West Coast course, which waters the rough, will have 30 to 40. A key feature for many superintendents considering a computer controlled irrigation system is whether it can run other programs.

Expanded uses

"The demands of superintendents include so many things," said John Skidgel, golf marketing manager for The Toro Co. Irrigation Division. "They want records. They want to know if there's any shutdown. They want to operate lights on the tennis courts, open and close valves on the ponds to keep the water levels at a certain point. They want to turn on their aerator out in the middle of the pond. On and on and on...

"We've even got additional programs so guys can do things like lightly sprinkle the fairways to remove frost right before play starts in the morning."

Some systems are PC-dedicated; others are not. The difference is that one can be used for other purposes while it is controlling the irrigation; others cannot.

But Wright said it shouldn't matter. "You figure you irrigate from 10 at night to 6 in the morning. No one uses the computer for other things at that time," he said.

The difference from one system to another?

"We don't find a whole lot of difference," said consultant Mervis. "They're all trying to do the same thing."

Future

Continued from page 17

energy and ground water contamination — this is a way of control.

"Superintendents can use computers to solve environmental concerns."

Christie predicted systems will have information "as to how much water, over what period of time, is needed to wash fertilizer in slowly rather than going straight to the ground water."

Sears said one manufacturer is developing a system programmed with weather data from the last 30 years. A superintendent will punch up his ZIP code and the program will plug in that data right into the system. The weather station will then base itself, and make daily adjustments from that data.

The cost

The cost of computer controllers, Thompson said, "will play the same proportionately."

"You pay a premium for new technology," Thompson said, "but it will make the difference."

Ray Davies, superintendent of Virginia Country Club in Hunting- ton Beach, Calif., and president of the Golf Course Superintendents Association of Southern California, said he doesn't consider it a disadvantage for a company to promote its system's many capabilities, even if they are not used much.

"It may be an inaccurate sales tool," he said. "You only talk about a bell or whistle if that thing's important to the customer. And it's up to the customer to decide if it's what he needs and to buy accordingly."

Supers

Continued from page 1

gallon more than before. The price of oil had just gone up to $24 a barrel and was destined to climb over $30.

"We get monthly 1,000- to 1,500-gallon deliveries," Jones said. "I hate to think what my next fill-up is going to cost."

Ken Flisek was more optimistic about his situation at The Woodlands course in Falmouth, Maine, which is closed in the winter.

"Our fuel is only about $10,000 out of a $400,000 budget," Flisek said. "That may go up to $12,000 next year. That does count heating fuel for the maintenance building.

In the heartland of the country, Stephen Biggers IV reported a similar feeling.

The president of the Indiana Golf Course Superintendents Association and superintendent at Highland Golf and Country Club in Indianapolis, Ind., Biggers said, "Guys with a longer season will be hurt a lot more than us."

Biggers said gas prices had gone from $1.00 to $1.30 per gallon, but that impact was minimal considering the size of his overall budget. He said he had not bought oil or chemicals since the Middle East crisis arose, and added: "I don't know what will happen in the chemical industry. I'm sure there's plenty in stock. New materials will probably go up. More than anything else, the cost increase would be in products that use surfactants (surface active agents), wetting agents or emulsifiable concentrate-type materials.

"Luckily, we're almost out of the season for chemical applications."

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