

Keeping up with irrigation technology

**Today's computer systems
can cut irrigation chores as
never before**

Efficiency and economy are the buzz words in irrigation today.

Irrigation technology has improved tremendously in recent years and any golf course with a system that is more than 10 years old should seriously consider updating it to take advantage of these advances.

Today's systems are much more

efficient and waste much less water. Irrigation manufacturers have responded to the demand for conservation by producing sprinkler heads and controllers that conserve not only water, but also time, labour and energy.

Computers incorporated into irrigation systems is one example of the advances. Computer and software capabilities are



Image manipulation: Tim Most

continually expanding and computerised control systems can be updated to reflect that.

Things are moving so quickly that some people are calling for a slowdown so that operators can

catch up. But greenkeepers who are worried about buying a high-tech system need not be concerned. Many are actually getting easier to operate. There's one we saw earlier this year at the

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Water point

Saudi Arabia's first all-grass golf course opened earlier this year – and at least three more projects are being planned. The first is the Dirab Golf Club, about 30 minutes drive from the Kingdom's capital, Riyadh. As you'd expect with a development where grass is being grown in a desert, irrigation is vital. Dirab has valve-in-head Toro 730 pop-ups, an LTC controller and satellites supported by TENA back-up services. Incidentally, it's too hot to play golf on the course during the day, so it's floodlit and the golfers go out after sunset.

GCSAA's show in Dallas where you can pull up a graphic illustration of one of your greens and activate one of the heads by moving your mouse to it on the screen and clicking. No more remembering numbers.

With this software, the whole irrigation system is digitally scanned into the computer as it is built. This has other advantages: in the future when you need to locate a pipe you can just print out this illustration.

Most of today's products are quite sophisticated, offering a range of features that enhance and simplify water management. A modern central control system can record the irrigation run times of individual stations, project the irrigation usage for a defined period and efficiently manage the flow to reduce wear and tear caused by hydraulic surges.

Here are some of the benefits derived from features available in

most top-of-the-line computer controllers, such as multiple repeat cycling, individual-station programming, flow management and two-way communications.

- Multiple repeat cycles apply the water needed by the turf in short cycles, which helps to reduce runoff and improve infiltration rates.

- Individual station programming is used to evaluate each station and determine the appropriate application rate with consideration of such factors as slope, pH and soil type. An appropriate irrigation schedule that will prevent flooding and runoff is then assigned to the station;

- Flow management also improves efficiency by monitoring the flow throughout the system and ensuring that the volume of water for each flow zone does not exceed its optimum capacity. The goal is to reduce strain on the system by not overloading it and at

the same time maximise the pump station's potential;

- Two-way communications give operators assurance that the commands they type into the computer are actually being implemented out on the course. A response from the satellites will appear on the screen to indicate when the system is activated. Some controllers have the additional capability to display a message that relays malfunctions and pinpoints where in the system they occurred.

A weather station, although optional, is another feature that many course managers/head greenkeepers consider to be a necessary addition to the modern setup. Weather stations gather weather information and upload it to the computer controller which uses it to calculate the ET rate. Sensors measure wind speed and direction, air temperature, solar radiation, relative humidity

IRRIGATION WINTERISATION

Do you have your irrigation system de-commissioned by a professional company?

Is the system tested electrically and hydraulically prior to drain down?

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Do they flush all irrigation lateral pipelines, solenoid valves and sprinklers with compressed air?

Do they proceed with a 60 point system check?

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point at the screen and click

INTERNATIONAL OUTLOOK

Water point

Remember, dirty water kills turf. Actually, it's not the water it is the bacteria-laden mud particles that does the damage. Warning signs are patches of green algae or "bloom" on the surface of your lake or reservoir. If this goes unchecked, it can consume all the available oxygen near the surface. Starved of its lifeline, the algae dies and sinks, repeating the process deeper in the water. If you apply chemicals to solve this problem, remember the water cannot be used for irrigation purposes for some time afterwards.

■ When was the last time you read the small print in your water abstraction licence? The NRA is tightening up and has imposed some severe penalties on clubs which have failed to observe the rules. "Licences only allow for watering at specific times during the day," warns Robin Hume of TIS Sandbach. For example, if you are licensed to abstract water for, say, 20 minutes each 24 hours, you cannot add another ten or 15 minutes just because there's a heatwave.

and rain. Compatible software enables the user to store daily and historical ET data, monitor and display current weather conditions and graphically display weather parameters.

Not only have the manufacturers loaded the systems with high-tech capabilities, but they've made them more accessible, too. Major irrigation manufacturers offer multiple communication options, including hard wire, telephone and radio, or a combination of all three. Wireless communication by radio transmitters appeals to designers who are retro-fitting a course because it eliminates the need to dig trenches for wire.

Another control option becoming more popular is the hand-held radio remote controller. Designed to give a greenkeeper more freedom, a hand-held unit can turn on and off individual stations, groups of stations, start flow management programmes and advance/pause irrigation functions from almost any location on the course.

A hand-held radio remote still must access the central computer, but field units also can be computerised to become independent controllers of a group of stations. Computerised field controllers have an added advantage in that they can help alleviate costly damage caused by broken pipes or a defective valve by measuring flow in gallons per minute and reacting to excessive flow. One new system we've seen has an alarm threshold and when the flow exceeds that threshold, the system assesses

each individual valve to detect the faulty one. When it has isolated the bad valve, it will shut it off (but the rest of the system will remain running), report the incident to the central computer and then notify the greenkeeper of what has occurred.

But no matter how much you fine-tune the controller or the original design, how you place your heads and how well they distribute the water will have the most impact on your system's effectiveness.

Uniformity is the goal of a good head design and that's not always easy to achieve. But, again, tremendous improvements have been made in recent years and if your budget doesn't stretch to a new controller your irrigation system may be improved by installing the latest heads.

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■ An £80million golf complex is being built in east Germany, in the grounds of a hunting lodge where the East German defence minister used to live. The Golfpark Schloss Wilkendorf, about 30 miles east of Berlin, includes an 18-hole championship course designed by Sandy Lyle, another 18-hole course, a PGA teaching academy layout, a driving range and three practice holes for beginners. Jointly financed by German and Swiss investors, it is being built by British firm Southern Golf and is due to open next June.

■ First they blamed the greenkeepers for their missing balls – the grass was too high! Then the golfers at Virvik in Finland thought it might be the ghost of a one-legged farmer who was spiriting away up to 40 balls a day. Then they discovered it was actually a fox making off with thousands of pounds worth of balls. A big search is now on to find the foxhole!

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