Are You Ready?

Graeme Francis poses the question to Course Managers and Head Greenkeepers around the country.

The irrigation season is just a few weeks away and once again its time to ensure you and your system are prepared.

The period between February and October last year was the driest on record and this has resulted in renewed interest in new and upgrading irrigation systems on our golf courses. Whilst the general level of irrigation provision on UK golf courses has improved significantly, there is a need to optimise the use of these better systems.

Much has been said about The Water Bill. It gained Royal Assent on November last year and is continuing on its way to the Statute Book in England and Wales.

It is not the intention of this article to cover the Bill, but it is possible it will have an affect, not just on clubs with boreholes or water course Abstraction Licences, but also on those using public mains supplies. What is particularly relevant to every Course Manager, whether it is for budgetary, agronomic or water availability reasons, is that irrigation water is used correctly.

An increasing number of greenkeepers are taking courses on irrigation theory and practice and they will undoubtedly be able to use this knowledge for the benefit for their courses. All too often, however, irrigation is still given a low priority. Clearly the operational parameters for irrigation are wider than those for other maintenance operations such as chemical application, but over watering in particular, as we all know, can cause major long-term turf management problems. In addition to the pure turf grass issue, it is not beyond the realms of possibility that significant reductions in water use can be achieved when a Course Manager can use a sound knowledge of irrigation principles and combine it with a reliable, accurate system that will allow that knowledge to be out into practice.

It is widely accepted that the primary purpose of an irrigation system is simply to replace the water that is naturally lost from the plant. If you take evopotranspiration (ET) as a key water-scheduling factor, how do you measure it? and once you have, how can you relate that to the amount of water you apply through the irrigation system? Simply using a weather station that will give a base rate of ET for your course can solve the first part of the puzzle. As a golf course almost always has a variety of microclimates, adjustment using the ET base rate is necessary to fine-tune the irrigation scheduling. Replacement of ET can then, by calculating sprinkler application rates, be programmed into the irrigation schedules. Crucial factors, including aspects such as soil infiltration rates, should then have to be taken into consideration. If you are still using a "box-on-the-wall" controller, manual calculation of the system application rates is the only way to relate ET and the whole plant/soil/water relationship to system performance. This requires accurate information on sprinkler spacing, flows and distance of throw and, sadly despite the efforts of the many good contracting companies, there are still systems being installed, where these essential performance figures are not even provided by contractors at the quotation stage let alone once the system is operational.

There is no doubt that the PC based technology is the future of golf course irrigation control. Systems in which sprinkler application rates are calculated automatically using site data eliminate the need for manual calculation. The biggest benefit is, however, that sprinkler operating times can be based upon application rates shown in millimetres per hour. This allows a direct correlation between water losses through ET, infiltration rates and grass types and irrigation application rates. In conjunction with an ET rate calculating weather station and using the WindowsÆ PC operating environment, ET rates can be used to set and adjust sprinkler run times quickly and precisely. This combination of PC based controller and weather station is increasingly becoming the standard arrangement for many course managers. The most advanced PC based control systems take this a stage further, however, and can be linked directly with a compatible ET rate calculating weather station. The ET value is then taken by the irrigation controller software and automatically adjusts irrigation operating times on a regular basis. Fine tuning is achieved by inputting site factors codes that coverage grass type, soils, slopes and other relevant topographical and operational influences.

This last example clearly represents the pinnacle of irrigation scheduling; such systems are relatively unusual in the UK. For most courses the useful and practical manual system works very satisfactorily. Today, perhaps no more than 10% of Course Managers have the benefit of PC based irrigation control. The majority rely on "box-on-the-wall" controllers. This raises the question of how many greenkeepers have been provided with the necessary level of training to get the best from the less advanced technology available to them. Certainly, the number of greenkeepers taking the British Turf and Landscape Irrigation Association's (BTLIA) Diploma has increased over recent years and this is greatly encouraging. The course covers the plant/soil/water relationship and irrigation design and operational practises, but more greenkeepers should have the opportunity to take the course.

The BTLIA, as a non-profit making trade organisation is committed to improving the standards of system provision and has focussed on irrigation education for many years as one way to meet this objective. Training of irrigation industry personnel and system operators has been the primary

▲ PC-based irrigation control systems like this Toro Gemini-Trident unit offer major operational benefits to Course Managers and greenkeepers

aim of the course. Now, however, a further reason is to ensure when a club is considering a new system the decision makers, Committee Members, Club Directors and Manager's, as well as Course Managers have an adequate understanding of what they are buying. The decision makers should understand the long-term benefits of such design aspects as correct sprinkler selection and positioning. A knowledge of other factors such as the advantages of having individual control of sprinklers on greens is essential if the right choices are to be made. An example is that of tees irrigation. At one time tees were irrigated using a single row of sprinklers down the centre of the tee. These were set to rotate through 360_ and in order to cover the tee surface adequately they would overthrow the tee by as much as 40%.

Today, hopefully all tees are irrigated using sprinklers located along the edges and set to rotate through 180_ across the tee surface. This often requires a row of sprinklers down each side and represents a slightly higher initial capital expense.

In many cases, however, the reduction in water use over the single centre row to apply the same amount of water to the actual tee surface can by as high as 70%. It won't take long to offset the initial cost by reducing water cost. This simple demonstration of how knowledge of irrigation principles can help in making the right choice of system is just one instance of how training can be beneficial.

Even today, over 30 years after automatic irrigation became recognised in UK golf course management, too many purchasing decisions are being made with only one criteria being considered, price. If whilst choosing a system, a club undertakes a comprehensive technical and commercial evaluation of the three or four design proposals they receive and they can be satisfied that the one with the lowest price meets all of their requirements, then no one can argue with the decision to go with that bid. The question is does that always occur? The answer is probably no and the result is that choosing an irrigation selection becomes a gamble. A number

of clubs decide to employ an irrigation consultant to eliminate the risk, but many more seek out contractors and request design and build proposals. In doing so they must take a planned, informed approach. Insisting on comprehensive system performance information is an important area, as this will allow a more technical comparison to be made and will also provide the essential data mentioned earlier that will allow good irrigation practice.

And so we return to where we started, training in system design and operational principles is essential for every Course Manager. Many have recognised this and have taken the BTLIA Diploma course or an irrigation module within a wider greenkeeper training programme. Those that haven't are reducing their opportunity to first get a good system and secondly to use it to the best. Who's to say that the summer of 2004 won't be another long dry one?

Are you prepared?

Graeme Francis joins leading irrigation contracting company

Graeme Francis has joined Par 4 Irrigation Limited as Managing Director. He has been involved in the UK irrigation industry for nearly 20 years, working at both contractor and distribution level. Graeme has been a member of the Executive Committee of the British Turf and Landscape Irrigation Association for the past seven years during which time he was Chairman from mid 1999 until 2002.

Par 4 Irrigation is one of the leading irrigation contracting companies in the UK. Graeme will be formulate and implement the company's strategic plan to further develop its strong market presence and to increase the product and services portfolio into associated areas such as lake management and washdown water recycling systems. The company was founded in 1981 and has installed over 500 systems since that time. Customer service and support are considered highly important by Par 4 and the company currently has over 300 formal Service Agreements throughout the UK.

"I am particularly pleased to have the opportunity to take the extremely good reputation and the very high levels of experience and technical expertise that Par 4 has gained over many years and use it as the foundation for further development. We will continue to strive for ever higher standards of irrigation system design, installation and maintenance and will also bring the same qualities to other areas of our business," said Graeme.