

# Where are you going with irrigation?



**Sport in the UK is predominantly played on turf and it is the overall quality of that surface which dictates the excellence of play. There are several factors which help to control sward quality including grass species, maintenance practices and irrigation; and it is perhaps the latter which is least understood.**

Unlike agriculture, sports turf managers do not require their turf to produce a commercial yield, they

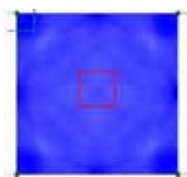
require a balanced growth, sufficient only to maintain the quality of the playing surface, and of course it's the quality of that playing surface which keeps the punters clamouring to become members, or seek out your facility as a visitor.

The past few years have provided the UK with about as many varied rainfall scenarios as there is possible to be. The autumn of 2012 was the wettest on record and we had an extremely cold spring this year. Cold winds have scoured the turf for available water leaving us

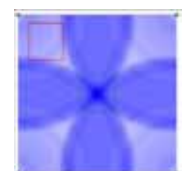
with bleached droughty conditions. But are we heading for a hot dry summer, and are you prepared?

Whatever your views on global warming weather patterns are certainly changing. Even in areas of the country where average rainfall figures suggest there has been little significant change in the past ten years, the pattern of precipitation has changed.

Moderate precipitation over a sustained period has often been replaced with shorter but heavier downpours, resulting in an even



Densograms above (good) and below (bad) coverage



With the UK continuing to suffer erratic weather, irrigation has become more important than ever. Adrian Mortram investigates water management provisions and gives advice on irrigation whether your course is large or small



greater need for irrigation as the rootzone is unable to absorb the precipitation and surface run-off wastes the precious resource.

### **Taking responsibility**

'Taking responsibility for Water' is a document produced by the United Kingdom Water Research and Innovation Framework and looks at provisions for water until 2030. Water will be increasingly in demand in the future, it is not a finite resource and golf courses

must make provision for this. In the UK demand is set to increase. Not only will potential consumption rise but owing to urbanisation, road building and residential housing, the amount of water naturally recycled will decrease and the surface run off which lost to drainage will be greater.

The way forward has to be through better understanding of the use of our precious resource. Several golf courses in the UK, Europe and beyond have had success with continued use of potable

water and abstraction rights when they have been in a position to demonstrate they are being proactive in their effective and efficient use of water. The use of water meters to monitor and record specific water use for irrigation purposes on a daily or weekly basis is a must to protect your rights to this water as this provides factual information which can be presented as hard evidence.

An irrigation system is arguably the most expensive piece of equipment in which a golf club



Weather Station



Checking Soil Moisture for Irrigation Scheduling

can invest, but as most of it is out of sight it is frequently neglected. Many irrigation systems in the UK were installed in the eighties and nineties, the boom years for golf, and may be nearing the end of their productive life. They may no longer be fit for purpose or indeed not meet current Health and Safety standards as well as wasting considerable amounts of water. It may be the time to analyse whether it is expedient to sit back and do nothing, repair the ailing system, upgrade it or grasp the nettle and replace the existing system.

A thorough Irrigation System Audit from a competent and independent irrigation consultant will look at all aspects of the irrigation system.

So, should you repair, upgrade or replace? Repair will almost certainly be the least expensive, but will it be the most cost effective over time? Upgrading may involve looking at the whole ethos of 'what do we wish to irrigate?' and any upgrade should always be balanced with the integrity of the existing system.

If the decision is to replace then there may be no need to replace the whole irrigation system in one year, a phased approach could be adopted provided the new plan is embedded in the overall golf club management plan.

## Design

The design and designer must rank high in the efficiency of any irrigation system and when coupled with a detailed knowledge and understanding of the equipment available in the marketplace, will save water.

A tees and greens only system will certainly use considerably less water than a wall to wall fairway design. Sprinkler arc settings set to 180 degrees rather than 360 degrees will also reduce water application volumes provided the sprinkler run times are adjusted accordingly.

Deciding the priorities and parameters of your irrigation requirements are a matter of individual choice. Areas can be targeted accurately for specific irrigation needs, one only needs to witness the accuracy of targeted areas demonstrated on desert courses in both America and the Middle East. Accurate design, spacing and installation of sprinklers to ensure head to head contact is vital in ensuring efficient coverage.

The use of specific design software to select the most efficient irrigation sprinkler and nozzle for

the desired spacing is extremely important to ensure efficient use of water. Modern sprinklers can also deliver the irrigation trajectory at lower angles, helping to ensure better distribution in windy conditions. Sprinkler run times and application rates need to be within the bounds of the infiltration rate using a repeat and soak cycle if necessary.

## Monitoring conditions

Accurate monitoring and recording of soil moisture deficit conditions will allow the irrigation manager to balance and modify the daily application rate. After a period of natural precipitation it is not only pointless but profligate to apply irrigation which takes the soil moisture level above field capacity.

The days of ten minutes per night to all areas of the course are over. Water balance sheets have now largely been superseded by weather stations and soil moisture monitors, which can be directly linked to the irrigation central computer controller.

I might add that all too often when making a return site visit to a Golf Club where an irrigation system has been installed in the past, the initial irrigation programme has not been altered or modified. Workshops on irrigation design and maintenance are available at BTME.

The move toward improved sustainability within our industry is something which is here to stay. The advancement in irrigation design, irrigation central control and sprinkler technologies are a vital piece of the jigsaw and irrigation manufacturers are constantly striving to ensure the efficient use of water by their products. There are irrigation computer controllers which now schedule sprinkler run times in seconds rather than minutes.

One area in which advances are rarely mentioned is turf grass species. We irrigate to ensure the survival of our grasses which make up our playing surfaces and it is their requirement for water which ultimately determines how much we apply.

The use of improved cultivars of grasses which have a lower water use rate and those with deeper rooting to ensure water availability in the soil is maximised is a must.

The composition of the rootzone is also an important factor and how this is managed an even more important factor. So when we consider efficiency within our irrigation system we should also consider



the species composition and the rootzone as these have considerable bearing on the water demand for irrigation.

Undoubtedly there is going to be more pressure on our most precious resource – water - in the future.

As an industry I truly believe our practices are efficient and often more so than other industries whose use of water is far greater than ours. Perhaps our voice is sometimes least heard or maybe least recognised, even though we provide pleasure and enjoyment for so many people.

I feel we need to communicate our need for water, not as a need for yield, as in the turf industry yield is not our goal; our goal is sufficient water only to maintain growth and a quality playing surface.

Communicate with your membership and explain the principles of water management, audit your irrigation system to ensure you have an efficient system design, regularly maintain and service your irrigation system, identify your priorities for irrigation in a worst case scenario and repair, upgrade or replace as necessary, but above all be proactive in your water management policy.

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