

PROVISION AND APPLICATION OF WATER TO THE GOLF COURSE

By

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AFTER such a long wet winter any remarks about watering may appear totally inapt but it often happens that very hard or wet winters are followed by particularly dry summers. From the point of view of maintenance it is generally recognised that a club having a good watering system available is in a stronger position than a course where no artificial watering is possible.

Efficient irrigation provides more uniform playing conditions throughout the summer and also allows the Greenkeeper to follow a much more intensive and flexible maintenance programme. To date far too few courses possess a really first-class watering system, although a number of clubs are making efforts either to lay on water or to bring an existing system up to date and improve its efficiency. Where this is being done many points have to be borne in mind, including the following

Where streams, lakes or wells exist on the course these should be considered first of all as sources of supply but it is essential to establish whether they will provide sufficient water to meet peak needs in a prolonged dry period. Sinking special bore holes can often be justified although this work will raise the cost of the installation. Occasionally streams become polluted with substances injurious to turf and if there are any doubts about this point it is worthwhile having samples analysed before using the water on greens. Most private water supplies contain a great deal of suspended matter and provision must be made for filtering otherwise sprinkler jets can become blocked or badly worn.

There is often no alternative to using the mains supply but this has its disadvantages. Firstly, mains water is expensive. Charges are usually upwards of 2s. 6d. per 1,000 gallons. Also, restrictions are frequently imposed during dry weather just when the system

will be needed most to keep the turf healthy. In a few cases mains water is delivered at sufficient pressure to allow direct application, thereby avoiding the cost of a power unit and pump. However, it is possible for some form of booster pump to be required.

Choosing the correct type and size of underground mains requires careful calculation in order to allow for losses in pressure due to friction and heat. In addition metal pipes tend to corrode over the years, reducing their effective bore. A pump unit of the correct capacity must also be chosen. These factors must all be taken into account to ensure that sufficient flow and pressure are available at the distribution points to operate several sprinklers at one time. The only way to make absolutely sure the system will be sound is to consult a firm of experienced water engineers before work is put in hand.

Methods of applying water can vary a great deal and include fully automatic systems using pop-up sprinklers which are permanently left in position, require no movement and consequently cut down the running and labour costs. Systems of this type can be set to operate completely automatically under electric control, if required. Their main disadvantage appears to be the relatively high initial cost.

Conventional sprinklers are more widely used and those operating on the rotary principle are usually found quite effective, being light to transport and cheap to purchase. The majority of sprinklers require a water pressure of at least 25 lb. per square inch to operate effectively although some will perform satisfactorily at much lower pressures.

Where water pressure is particularly poor a few clubs still hand-water using open hoses but this practice is now accepted as being very inefficient in labour utilisation and seldom achieves good results.

The following principles for applying water are fundamental but often become overlooked to the detriment of the turf

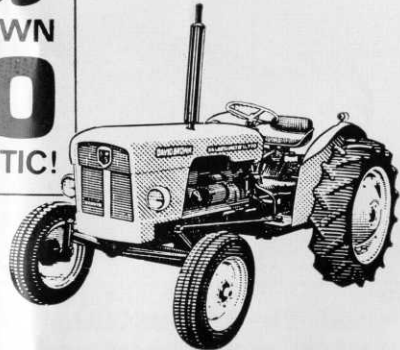
It is important to begin watering before the grass cover shows any sign of suffering from drought. In a particularly dry and windy spring, greens may well benefit from watering as early as April or May although it is more usual for turf to suffer from drought in the summer when temperatures tend to be higher and evaporation losses greater. Water should be applied slowly enough for it to be absorbed by the surfaces. Soils vary in the rates at which they are capable of accepting moisture and although very sandy soils usually permit rapid percolation, the heavier loams absorb water much less readily. Fibrous turf tends to retain moisture in wet weather giving soft soggy playing surfaces but if the mat is allowed to dry out it becomes exceedingly difficult to re-moisten, the turf therefore suffers badly from drought since most of the water applied is shed off the area. Penetration can be assisted by intensive solid tining before water is applied but the long term aim should be to reduce the fibre formation. Tops of undulations suffer in a

similar manner and local forking before watering is helpful in maintaining uniform conditions where undulations occur

It is most important to give adequate amounts of water to meet the plants' needs. There is almost always a tendency to under-water turf during dry weather. Light and infrequent applications of water may keep the turf alive but do not achieve good results. If only the surface is moistened roots tend to be active in this region and the turf becomes very tender and does not withstand wear or drought at all well. The aim should be to keep the top soil moist to a depth of at least 4 inches and preferably more. In order to achieve this something like the equivalent of 1 inch of rain per week is necessary in very dry weather. This means providing approximately five gallons of water per square yard per week under these conditions. In practice it is better to water thoroughly twice or three times per week rather than give small amounts each day.

On the other hand over-watering can be detrimental to the turf since it can under certain circumstances cause the surfaces to puddle and become badly

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waterlogged. Playing on very wet turf results in compaction and destroys soil structure. A relationship also exists between heavily watered turf and fungal diseases. Warm moist conditions in the turf encourage the development of, e.g. Fusarium patch disease and Ophiobolus patch disease, the incidence of both are, of course, to be avoided if at all possible. It must also be remembered that money is being thrown away whenever the irrigation system is being kept in operation unnecessarily.

Applications of water should always be timed to cause as little interference with play as possible and naturally one does not expect to see sprinklers in operation during competitive golf. Automatic night watering meets this requirement without the need for staff working overtime. Watering during the day is however, often the only practical method and some inconvenience may be created for the player. This, of course, is much less detrimental to his game in the long run than a turf badly affected by drought.

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