

tation from users of amenity grasses, as well as from the seed trade. It is hoped that the new Committee, for which invitations have already been sent out, will help the Institute in making its research policy as effective and valuable as possible.

Other research work included trials with fungicides and herbicides, the development of techniques for testing fungicides under controlled conditions, investigations into some aspects of disease resistance, the control of annual meadow grass and studies of soil permeability.

The advisory service continued to operate for the benefit of subscribing sports clubs, golf clubs, schools and parks departments, etc. and there was an increase of 5% in the number of advisory visits made during 1971.

A total of 128 greenkeepers and groundsmen, etc. attended instructional courses held in spring and autumn.

Financially, the Institute, which is a non-profit organisation, usually manages to break even, more or less – during 1971 there was a deficit of £348.

Automatic Golf Course Watering

by

Wright Rain

What are Pop-up sprinklers?

Pop-up sprinklers provide the most sophisticated labour saving and precise means available for the planned irrigation of grass playing surfaces.

Irrigation systems can be designed to apply appropriate amounts of water for varying soil conditions to any size or shape of area by using the right sprinklers at the right intervals.

Precision watering is carried out at night when playing surfaces are not in use, transpiration losses are low and wind-drift is reduced.

Most Toro pop-up sprinklers are gear driven rotary models. Some may be adjusted to water virtually any part of a circle, whilst others are pre-set to cover a full, three-quarter, half or quarter circle.

The Toro range embraces sprinklers to cover radii from 8ft. to 155ft., operating at pressures from 25 to 100lbs./sq. in. and applying from 0.25in. to 0.57in. of water per hour.

New additions to the already comprehensive range are the 620 and 640 series.

Automatic control

The 'brain' of this type of system is an automatic sequence controller. A programme of automatic watering is set on this unit and can be varied at any time in a matter of seconds.

The time the watering sequence is to commence is set up on the controller for the late evening – after the last player has reached the 19th! Whilst it is usual for the programme to be set for nightly watering, days can be omitted from the watering sequence to provide watering every other night if required, every third or fourth night, once a week or even once a fortnight.

The sequence controller starts and stops the electric pump automatically, as well as opening and closing the solenoid control valves. Each green has its own solenoid valve installed in an underground hydrant box which is usually situated at the rear of the green. After some experience with the system the head greenkeeper soon learns the length of watering time required for each individual green and sets the controller accordingly.

When the installation is completed and brought into operation, the soil is brought to 'field capacity' as soon as possible, i.e. moist from the surface down to the sub-soil. Thereafter the system is used to apply only sufficient water to make up for the moisture loss daily. This 'topping up' process therefore requires only a short application of water at a slow rate every night. Moisture loss due to evaporation is negligible as watering is carried out during the hours of darkness.



*Mole ploughing supply pipe around a green. Note the negligible disturbance of the turf.
Photograph: Wright Rain Limited*

Installation

The days of opening and backfilling trenches have passed and instead the underground water main together with the electric control cable are now installed by a specially developed mole-ploughing technique. This includes the piping around each green as well as the general water supply mains over the course.

Rigid P.V.C. pipe is used for the water mains. It is non-corrosive and is resistant to attack by all soil acids. It has an indefinite life and the efficiency of the system will not be impaired by reduced water pressure due to closing up of the bore in the pipes by a rust deposit which eventually occurs in ferrous pipelines. On average, installations are completed in about four weeks in good weather conditions.

Whilst most golf courses in the U.K. have been installed with a system for watering the greens only, certain variations have been carried out. Apart from the addition of tee watering, possibly the most notable is a permanently installed 'pop-up' sprinkler on the approach apron to the green. The sprinkler is of the full-circle spray coverage type and is installed about 40 feet in front of the green.

On some courses, fairways are also watered. Automatically controlled sprinklers can be used for watering the fairways and a number of overseas golf courses have been so equipped.

With more and more golf clubs availing themselves of permanently installed automatically-controlled watering systems, the trend has been set. Beyond doubt the initial capital cost of this type of installation on a golf course is justified by the subsequent overall improvement to the course.