AUTOMATIC IRRIGATION MAKING NEW INROADS

Automatic irrigation is quickly becoming the norm in golf course maintenance. The latest controversy is over the probable use of effluent with these systems

by george kerr

NATIONAL GOLF FOUNDATION CONSULTANT SOUTHWEST REGION According to a survey on golf course irrigation published in 1969 by the National Golf Foundation, 17 per cent of the golf facilities in operation then were equipped with automatic watering systems from tee to green. Another 36 per cent utilized a semi-automatic system to water tees or greens or both. Together, the total percentage of 53 reveals that a little more than half of the watering systems in 1969 were automated to some degree.

In comparison to 1969, 90 per cent of the golf facilities built between 1972 to 1974 in the Southwest incorporated completely automatic irrigation systems.

Twenty-five per cent of the automatic systems installed by irrigation contractors in the Southwest were remodeled or replacement systems for older, established golf facilities.

The reasons offered by superintendents justifying the shift from a reliance on manual systems to automatic systems are many and varied. Nonetheless, they form a pattern and indicate an attempt by superintendents to solve their most pressing and immediate problem, that of the high cost and low quality of labor.

That attracting and keeping qualified workers has long been the nemesis of the superintendent is common knowledge. The golf course industry competes for its share of the available labor market with business and industry. Ill-equipped to offer course workers little more than the minimum wage, the embattled golf course often comes in second in the labor competition. The superintendent settles for what workers he can get, thus beginning a vicious cycle. The superintendent must pay increasingly higher wages to workers he is loath to hire. Not only do their irresponsibility and carelessness cripple his maintenance programs, but by budgeting more

money for labor, the superintendent drains cash away from other, equally essential, budget categories.

From the point of view of the superintendent, the case for the automatic irrigation system is more than justified: by relying more on automated equipment, he eliminates specific jobs and the men who perform them.

Not even the initial high cost of installing an automatic system deters the superintendent. He believes that in the long run the cost will be offset through cutbacks in wage expenditures. Added to the attractive prospect of at least partially solving his labor problems, are the advantages inherent in the automatic system itself: flexibility and strict control.

THE NEW CONTROVERSY

If the question of the feasibility of the automatic irrigation system has been settled, the subject of using effluent water has not. It is currently one of the most talked about subjects in the irrigation industry.

The idea of recycling has its roots in the national movements toward a cleaner, pollution-free environment. Dumping human waste into nearby rivers, streams or oceans no longer can be sanctioned. Alternative methods of waste disposal, such as recycling, must be developed and accepted by communities nationwide.

Commonly-believed notions about water suitability must be reexamined. Why does all water have to be fresh? For drinking, yes, but what about water used to irrigate recreational areas? Why does that water have to be fresh?

Effluent water can be used to irrigate golf courses, and has for many years in areas such as the Southwest where fresh water is both costly and scarce. A study from Colorado shows that the cost of irrigating a golf course

IRRIGATION from page 48

with city water would run \$411 a day, whereas watering the same course with filtered effluent costs about \$97 a day—a considerable savings, even though construction of a filtration plant would cost the club \$280,000. Considering the scarcity of potable water in that region, the cost of a sewage treatment plant is a small price to pay to recycle water for recreational use.

Another consideration to be taken into account when deciding to use effluent or not is the presence of nutrients in effluent water. It is possible that in the next few years, a shortage of nitrogen fertilizer may occur. Effluent, according to a group of California researchers who analyzed effluents from 15 cities, contains 60 to 100 pounds of nitrogen in one acre foot, 60 to 100 pounds of phosphorus and 20 to 40 pounds of potassium.

Many minor elements, including sulphur, magnesium, calcium, iron, manganese, boron, zinc and copper are also present to some degree in sewage effluents. The fertilizer value of sewage has been estimated by some researchers to be somewhat greater than its value as water.

This viewpoint is not shared by men who used effluent on bermudagrass at Llano and Fredericksburg, Tex. At Llano, sewage effluent was considered to have very little more fertilizer value than well water. There was a marked difference in greenness between fertilized and unfertilized plots at Fredericksburg where the effluent was used.

Properly treated sewage effluent has no objectionable odors or other undesirable characteristics. Many cities in Texas, such as Corpus Christi, Midland and Lubbock, use sewage effluent in irrigating municipal golf facilities. Many of the Planned Unit Developments springing up around the state are also utilizing effluent for the golf courses.

Information about the cost of effluent to the user is scanty. The most common arrangement is the one in which the effluent is donated to the user if he will defray the costs of removing it from the disposal plant or some area of deposit. In other arrangements, the user pays a stipulated sum for the use of the effluent. Others are charged by quantity, so much per 1,000 gallons. Costs from nine different cities ranged from \$.01 per 1,000 gallons to \$.25 per 1,000 gallons. As water resources become more acute, it is probable that higher charges will be instituted. Engineers in San Antonio, Tex., calculated the cost of producing a million gallons of effluent at \$35, including chlorination. A million gallons equals 3.07 acre feet.

The use of treated effluent water in automatic irrigation systems is a desirable means of utilizing water that heretofore has been thought impractical. At present, western, southwestern and Rocky Mountain states have a greater need for effluent. These states have the fastest-growing populations and the least amount of natural water sources. With pollution becoming a greater public issue, certainly other areas of the country will need to evaluate their present sewerage systems. In time, modern technology will reduce the cost of filtration and purification systems; then effluent water will be an inexpensive source of irrigation water for golf courses.

GOLF BAG STORAGE RACKS RACAGE CACKS RACAGE CACKS RACAGE CACKS NRUSINESS SINCE 1933 Call Collect 301-322-3900 Cr Write For Free Literature NEUSINESS SINCE 1933 Call Collect 301-322-3900 Cr Write For Free Literature NEUSINESS SINCE 1938 Call Collect 301-322-3900 Cr Write For Free Literature

IMPROVE BAG STORAGE BEST BY TEST

WE DESIGN YOUR LAYOUT— ECONOMICAL—EASY TO ASSEMBLE HEAVY DUTY FURNITURE STEEL— NO OTHER PARTS TO BUY—



BEARD from page 18

water. The immediate, hydrophobic ring should be thoroughly cultivated by coring or forking to a depth of eight to 10 inches. Subsequently, the area should be saturated with water and maintained in this condition for a period of three to six weeks. Rewetting of the ring can be facilitated by the use of a wetting agent, whereas deeper wetting of finer textured soils is enhanced by the use of tree root feedingprobes. This water-saturation approach frequently results in disappearance of the visible ring symptoms, but there is no information to indicate that it is effective for all species.

Another approach that has been attempted involves cultivation of the ring by coring or forking followed by application of a concentrated fungicide solution of the appropriate type. It is preferably applied directly into the holes or else by a general soil drench application at a lower concentration. Results utilizing this technique have been erratic at best, with some suppression of the causal organism occasionally reported.

It is obvious from this discussion of fairy ring control that it can be a serious problem if it occurs in greens. \Box

Longboat Key C.C., Sarasota, Fla.

Woodbridge C.C., Woodbridge, Conn.