ILLINOIS TURF RESEARCH EFFLUENT WATER IRRIGATION PROJECT

Field Research:
Clavey Rd. Sewage Treatment Plt.
North Shore Sanitary Dist.
Highland Park, Illinois

Laboratory Research:
Dept. of Horticulture
University of Illinois
Urbana-Champaign, Illinois

REVIEW AND UPDATE OF THE USE OF EFFLUENT WATER FOR TURFGRASS IRRIGATION

In 1979 a research project to determine the effects of effluent water on turfgrass was initiated as a result of interest exhibited by golf course superintendents in the Chicago area. The concerns over the future availability of water for irrigating golf turf and the necessity for disposing of effluent water from sewage treatment facilities were the basis for conducting this research.

In January of 1980 a committee was established to guide the research activities. Support for the Effluent Water Irrigation Project were obtained from the following groups: the Chicago District Golf Foundation, the University of Illinois, the North Shore Sanitary District, the Chicagoland Golf Course Superintendents Association, and the Midwest Association of Golf Course Superintendents. Carl G. Hopphan, Superintendent, Aurora Country Club was chosen chairman. The committee was to remain as a permanent group during the duration of the project.

The site of the research project is the Clavey Road Sewage Treatment Plant of the North Shore Sanitary District in Highland Park, Illinois. The turfgrass plots were seeded in the fall of 1979 and during 1980 the turf became established and was ready for close observation. Soil samples were taken to establish the base levels of nutrients and heavy metals present in the plots. Water meters were installed so the amounts of potable water, secondary treated effluent, or tertiary treated effluent water applied to the plots could be monitored.

In all 45 turfgrass plots were established to either creeping bentgrass, Kentucky bluegrass or annual bluegrass. The various plots received varying levels of fungicide applications to determine disease activity of the turf to the three water sources. Also different amounts of fertilizers were used to determine any benefits of the nutrient content of the waters. In addition to turfgrasses, 5 plots were established using various ornamental plant materials common to the area; again to determine the effects of effluent water on plant growth.

The plots have been observed one to two times monthly by University of Illinois personnel. Also local superintendents have monitored the plots on a more frequent basis. Each fall since the start of the project soil samples have been taken to check for any changes in nutrient or heavy metal content. The Clavey Road Turfgrass Irrigation Research Project is open to the public and everyone is welcome to view the plots. There are signs describing the scope of the project, the groups involved and a map showing the location and purpose of the various plots.

To date, the study has provided much encouraging information on the use of effluent water for golfing turf. Dr. David L. Wehner, Assistant Professor, Turfgrass Science at the University of Illinois has concluded that no differences in turfgrass quality due to the use of either the secondary or final effluent water for irrigation have been observed over the last three years of study. Approximately 55 inches of water has been applied to the plots. Based on the results of this study, there appears to be no adverse effects related to the use of final effluent water for turfgrass irrigation. A final report on the findings of this research project will be prepared as soon as the results from the late September 1982 soil samples are available and some further water quality testing is completed.

In addition to the effects of effluent water on turfgrass the committee has contacted the Water Pollution Control Unit for the Illinois Environmental Protection Agency for their feelings on effluent water for turfgrass irrigation. The use of effluent water for turf irrigation does not fall under any current IEPA restrictions. Since the effluent has to meet certain standards before it can be dumped into a stream, the effluent would be of high enough quality to use for other purposes. The effluent could be piped directly to the golf courses or the golf courses could pump out of the stream into which the effluent was dumped.

So we now know that turfgrass can grow well with effluent water and that the IEPA is in agreement with its use. The next question would be how do we get effluent water to the golf courses and is it economically feasible to do so? For this answer the committee and 10 local clubs contracted the Engineering firm of Greeley and Hanson to run a study. In all five alternate projects of piping effluent water to varying numbers of the 10 golf courses were studied. The studies were first conducted in 1978 and revised in 1982. At the time of the first study there was a good possibility of obtaining a 75 percent demonstration grant, although today the possibility is slim. Estimated costs were figured on the basis of using present water rates and escalated water rates over the next 20 years. The study concluded that if the golf courses used effluent water for all irrigation, all five alternate projects would be cost effective on the basis of present water rates only with a 75 percent grant. If the costs are based on escalated water rates over the next 20 years, all five alternate projects would be cost effective with or without the grant if the golf courses used effluent water for all turf irrigation. Although the above study was made from one sewage treatment plant in Lake County, Illinois, most all of us are within reasonable range of our own local sewage treatment plants to apply the same principle.

The Clavey Road Research Project which has been sponsored by the Chicago District Golf Foundation, the University of Illinois, the North Shore Sanitary District, the Chicagoland Golf Course Superintendents Association and the Midwest Association of Golf Course Superintendents has broken ground for an alternative water source for turfgrass irrigation in our area. Although most of us today have not been faced with a water crisis, let's face it, our day is coming.

A special note of thanks should be given to our local golf course superintendents who made much of this project possible. Carl G. Hopphan, Superintendent, Aurora Country Club for his fine job as chairman. James Johns, Superintendent, Northmoor Country Club and Bruce Williams, Superintendent, Bob O'Link Golf Club for their work in turf plot maintenance and frequent turf plot evaluation. Also to the other golf course superintendents who have served on the committee for their foresight and concern. To Dr. David J. Wehner and Tom Fermanian of the University of Illinois for their investigative expertise. To the organizations involved, the Chicago District Golf Foundation, the University of Illinois, the North Shore Sanitary District, the Chicagoland Golf Course Superintendents Association and the Midwest Association of Golf Course Superintendents for their financial support, research and interest in the project.

This has been a path finding effort to investigate an alternative source of water for golf course irrigation in our area. Their efforts may well preserve golfing turf for the future.

Julius Albaugh, MAGCS Educational Comm.