



Wastewater irrigation conference report

As conservation of water resources becomes more critical, the use of effluent water (treated wastewater from a sewage treatment plant) for irrigation becomes more attractive and practical — especially to golf courses, which use large quantities of water and sometimes have trouble justifying their watering practices in the face of shortages and rationing.

There are a small number of golf courses — perhaps 75 — which have been irrigating with effluent water. Three organizations — the American Society of Golf Course Architects Foundation, the National Golf Foundation, and the United States Golf Association Green Section — have been studying the subject and, with the help of GOLF BUSINESS magazine, conducted a survey in the past few months to identify these courses and compile data on their practices.

The results of the survey were to be tabulated by early December, but in mid-November these three groups and the Golf Course Superintendents Association of America took another big step towards greater knowledge and use of effluent by conducting a “state of knowledge conference on wastewater irrigation of recreational turfgrass.”

Speakers at the conference in Arlington Hts., Ill., comprised government officials, golf architects, golf course superintendents, businessmen, engineers, and agronomists — all with some knowledge or experience to share with the more than 80 persons in the audience. Actually, the program also covered use of processed or composted sewage sludge on turfgrass. The consensus of the speakers and those attending was that use of these natural sewage byproducts is efficient, relatively inexpensive, and increasingly attractive — but there are particular things the user must be sure to do.

James W. Adams, vice president of The Toro Co., has been investigating and speaking on the subject of wastewater irrigation of turf for several years. Speaking at the Arlington Hts. conference, he described the successful arrangement the Innisbrook resort in Florida has with its county water

treatment plant.

Two years ago, an underground pipeline was built from the sewage plant to Innisbrook at a cost of \$600,000 — and the county paid for it. Why? Because otherwise they would have had to pipe their effluent 45 miles out into the Gulf of Mexico. But now Innisbrook superintendent Arlin Grant takes the wastewater to irrigate his 63 holes of golf and the grounds of the surrounding condominium development. The practice saves money for the county and the resort, while providing efficient use of a precious natural resource.

Adams reported that Innisbrook has been irrigating with effluent water for 7 years now with no complaints from golfers or residents. He made these recommendations to golf course superintendents beginning to use wastewater for irrigation:

- 1) Don't take unnecessary risks.
- 2) Be sure to get all necessary permits.
- 3) Establish and maintain good relations with all local agencies involved — pollution control, health department, etc.
- 4) Comply with all restrictions.
- 5) Don't hide facts from anyone. You have nothing to hide.
- 6) Take good care of equipment — especially filters and screens.
- 7) Remember that you are not alone. Other superintendents have done this before you, and many more will follow.

In addition, Adams said: Know your water needs. Know your grasses. Know exactly what kind of effluent water you will be getting, and be sure you are notified of any changes in the water.

Other speakers at the wastewater irrigation conference made these comments:



*Dr. Boyd Ellis, soil chemist
Michigan State University
East Lansing, Mich.*

I think there's a future for using wastewater on golf courses. I think we can use it and keep the golfer happy if we just pay attention to a few minor points:

First, we've got to establish the chemical composition of any wastewater we're going to use, and establish it before we use it.

Second, you must follow closely the chemistry of the system producing your waste. So make friends with the industrial people, even if you have to take them out to play golf occasionally. Find out what their chemical processes are and find out if they're going to make any changes.

Third, I would emphasize to contract for wastewater only if you can control how much and when you are going to apply it.

Fourth, carefully base your fertilizer program on the nutrient content of the soil and the nutrient content of the wastewater that you're going to be using. Adjust your fertility program to fit — don't leave it to chance. If you go to using wastewater, it's going to require more frequent soil testing, rather than less.

Fifth, but certainly not least, keep very close track of the sodium levels in your wastewater and your soils. That could be a potential problem.



J. D. Glass, superintendent
Los Alamos (N. Mex.) Golf Club

We're using approximately 200,000 to 300,000 gallons of water a day on our course, pumped from the plant about ½ mile away in a canyon off the number 3 fairway.

I've been at Los Alamos 7 years, and we've never put any fertilizer at all on the fairways except for effluent water. We do put a little nitrogen on the greens in the spring when we top-dress them, a very light coat in the summer, and a barely heavier one in the fall.

One thing I think we're all making a mistake on in this wastewater business — we stand here and talk to each other and we know the water is pure, but how many people in the town you come from know it's that way? Albuquerque Country Club spent \$85,000 piping water from the sewage plant over to the country club, and the members refused to play the course. Nobody told them the water was pure. That seems to be the big problem — we don't take time to notify the people or tell them before we put the wastewater on the golf course.

The gentleman before me said he wished he had covered tanks. I have one 250,000 gallons by the 11th fairway, and I have one down at the plant that's 250,000 gallons. There's no water on the course — it's all in contained, closed tanks.

What I like about the use of effluent — and my members like — is that I won't spend \$500 a year on fertilizers. My water bill runs a little over \$4,000 a year, mostly for pumping the water up from the plant. So there is a good value to effluent water. My golfers don't know any better. The Army Corps of Engineers built the course and started putting effluent water on it in 1947.



Richard P. Nugent,
golf course architect
Palatine, Ill.

Many of the fine golf courses here in Chicago have been irrigating with what is essentially a primary effluent for many years. The Skokie drainage canal runs past the Lake Bluff golf course, Onwentsia, Old Elm, Exmoor, Bob O'Link, Northmoor, Glencoe, and Skokie. Some of these courses are world-renowned for their turf, several of them have hosted major tournaments over the years, and they've been using this water for many years. Recently it's been getting worse. Many of them have found they had to have a holding pond. They would pump effluent out of this drainage ditch and at certain times of the year the phosphorus or nitrates would get too high. They would have to put the effluent in holding ponds and dilute it with city water.

They've gotten together with the people from the North Shore Sanitary District, who have built a new sewage treatment plant, and are going to put in some turf plots at the plant to see what happens to the grass under these circumstances. The golf course superintendents have taken the bull by the horns. They approached the sanitary district and are going to put in some turf plots right there and test the effluent. We were called in to help with the design of the distribution system. The people from Northmoor Country Club are going to mow and take care of the plots. Local contractors and local suppliers have given equipment and are volunteering their help in putting this together. Dr. Al Turgeon and the University of Illinois are going to monitor the test plots.

We think this is important because we're taking effluent and testing it to get results that are local. The important thing is to get the testing procedures into the hands of the ultimate users, where they are participating and it's not being done at a university. I think we will get a lot more acceptance in this manner.

This is a valid idea — you could have a grass roots testing program, and this information could be collected by the USGA Green Section and would furnish us a valuable source of information that we could use in designing golf courses throughout the country.

Why are we so interested in recycling water here in the Great Lakes area where we have ample rainfall and have winter to restock our supply of ground water? We're in a situation where our water comes from limestone formations which produce water anywhere from 300 to 400 feet deep. When we run out of this water, our next source of supply is a deeper strata, probably 1,800 to 2,200 feet deep. When you start going down that deep, that represents a substantial cost for a well.

Another thing happening here and around most other metropolitan centers is that population is increasing and people are building houses on top of this ground that used to absorb the water. They're putting in parking lots, driveways, streets, and sidewalks — and all the water that's handled by those does not go into the ground. It runs off and has to be handled by storm sewer systems. So we are very concerned that we have to do something to supplement our ground water.

The presentations of the past two days have greatly encouraged me and have convinced me that we have only just begun to use the water that's available to us. □

(Information from other presentations at the wastewater irrigation conference will be published in future issues of GOLF BUSINESS.)