Wastewater a solution for some courses

In the West, where a century ago bitter range wars were fought over water rights, drought conditions have dramatized the scarcity of water and have fueled a financial windfall, especially for golf course operators in the Southwest, Southeast and on the West Coast who face water bills of $50,000 and more.

National Golf Foundation Field Services Director Sheridan D. Much said in a NGF report: "Bitter range wars were fought over water rights, drought and insufficient water supplies—even in the West." Court said, "It's a pain in the neck." But while the West is the nation's water provider, the region is experiencing a water supply crisis.

In addition to diminishing supply and rising costs, golf course superintendents, through the consent of a water-conscious public because they irrigate many acres of turfgrass, must be found. One of those sources is wastewater.

Superintendent George Courthouts of Gainey Ranch Golf Club, a residential development in Rancho Santa Fe, California, has found success using wastewater in his computer-controlled irrigation system. Yet he warned, "It's a pain in the neck." Markland Properties, Inc., developers of the Gainey Ranch course and its surrounding community, built a $4-million wastewater treatment plant and dedicated it to the community. It uses the effluent to water the 27-hole championship course and another community greenbelts and landscaped areas in the community without worry of a water shortage in the Southwestern climate.

State law stipulates that Courthouts cannot irrigate with the effluent during the dry season.

Because effluent has a higher chemical content than fresh water, standing water leaves deposits of salts, chlorides and metals that are harmful to plant growth, Courthouts programs the irrigation system to slowly reduce the ground, therefore, teaching the chemicals down through the root zone.

"The effluent is obviously more corrosive than fresh water, but we get excellent, trouble-free performance from the valves and rotors in our system," he said.

"You're not going to get more benefits with effluent than, say, well water, but it's worth it," Courthouts said. "It's an excellent place to put effluent, certainly better than dumping it into a river or a hole. Courthouts said each golf course will face different problems with effluent, depending on the source of effluent being used.

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Field test started on subsurface drip

The Center for Irrigation Technology has initiated a three-year field trial to study subsurface drip irrigation of turfgrass to discover its long-term effectiveness and evaluate products of participating manufacturers.

Plots have been established from tall fescue sod. Participating manufacturers have recommended spacing for their products, and each plot will include lateral spacings 33 percent narrower and 33 percent wider than the recommended spacing. Drip lines will be installed about 4 inches below the soil surface and the sod will be watered daily, with gross applications based on reference evapotranspiration, adjusted for a crop coefficient and individual system efficiency.

Irrigation times for each product and lateral spacing will be adjusted so all areas receive the same net amount of water.

Wastewater

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problematical. Some climatologists say nothing can be done, that the situation will correct itself in 5, 10, 25 years. Watson said artificial turf could become the "grass" of the future since it requires no water.

"After treatment, wastewater is virtually pure water," he said. "It should be a resource which "we are not now using intelligently" and which "we can not afford to ignore."

"Sprinkler irrigation equipment can apply water wisely and without waste. The major advantage cited is that it places control in the hands of the best qualified individual on the turfgrass facility — the turfgrass manager."

"Automatic controllers coupled with valve-in-head, or valve-under-head sprinklers geared to apply water commensurate with the ability of the soil to accept it, conserves substantial quantities of water, and produces superior turfgrass," he said.

Watson said cloud seeding and desalination are, for the most part, prohibitively expensive and of limited benefit to water-needy areas.

Toro's Adams cautioned that it is "not feasible to use wastewater for golf course irrigation unless there is an automatic underground irrigation system."

Irrigation design courses planned

Ten-day design classes are being held through May at Weathermatic's College of Irrigation Knowledge in Dallas, Texas, according to Director of Training Richard B. Choate.

The college, which has been training distributors, contractors, specifiers and professionals in related fields since 1966, opened its 10-day classes in September. Abbreviated five-day courses for specifiers are normally offered in late May and early June.

Initial funding for the project has come from the Northern California Turfgrass Council, Metropolitan Water District of Southern California and participating companies.

The turfgrass in each plot will be visually rated on a scale of 1 to 9 for color, density, texture, uniformity and pest presence. Plant stress measurements will be taken using infrared thermometry.

At the end of the study, CIT will offer guidelines on the operation and maintenance of subsurface drip irrigation systems, and will be able to estimate the water-saving potential.CIT will issue reports annually.

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