BY ANTHONY PIOPPI, CONTRIBUTING EDITOR

More and more courses across the country are being asked to use effluent or poor-quality water.

"The key is people don't realize that not all water is good water for turf."

SHAWN EMERSON,
DIRECTORY OF AGRONOMY
DESERT MOUNTAIN PROPERTIES

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are focused on human exposure and not the eventual deposition of the minerals and salts. Duncan says the latter problem should be a concern of the turf industry.

"If (salt) gets in the soil, then where is it going to go?" Duncan asks. "[But] this [problem] is much bigger than golf turf."

The use of effluent water and the problems it causes is a complex issue. There are no simple guidelines to follow or quick-fix chemicals to alleviate the difficulties.

Carrow, who co-authored with Duncan the book, "Salt-Affected Turfgrass Sites: Assessment and Management," says there are a few hard and fast rules when it comes to dealing with reused water. First, superintendents must have accurate water testing so they understand the specific problems. Second, constant monitoring of water to detect quality changes is imperative. There is also one very important rule to consider even before a course switches to effluent.

"Do not enter into a contract where you have to accept a quantity of water constantly," Carrow says.

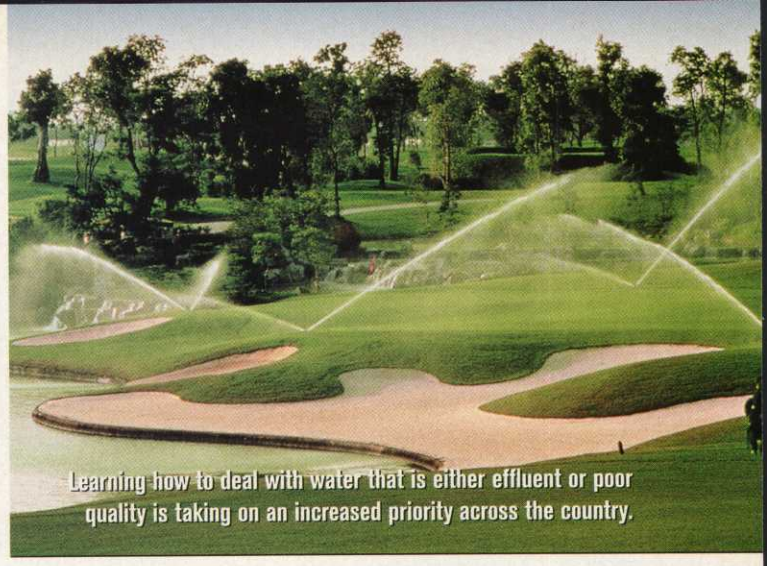
That scenario leads to problems when superintendents are forced to irrigate merely to make room for more water. With the subsequent overwatering, contaminants build up quicker and turf also suffers from being too wet.

Carrow breaks water problems into three categories: high total soluble salts, nutrient imbalance and high sodium content. But the issue is more in-depth. There can be 10 or 12 variables that come into play. "You have to understand, it's complex when you get poor water quality. It is site specific," Carrow notes.

Some of the factors affecting water include quality of the original supply, method of purification used by the supplying municipality, soil type, weather patterns, and drainage and irrigation systems.

To illustrate how complex the issues are, Duncan points out that bicarbonates and calcium are found in high levels in areas of the West even before entering the municipal water supply.

PHOTO COURTESY: TORO



Learning how to deal with water that is either effluent or poor quality is taking on an increased priority across the country.

In another common scenario, over time a prolonged drought can turn good water bad or bad water worse. Duncan says he always knows when a dry spell has affected water quality in a specific part of the country. "That's when my phone starts ringing off the hook," he says.

Maybe no other location in the country has as many water-related issues as greater Scottsdale. First, Scottsdale is arid, receiving about 6 inches of rain a year. Second, the crushed granite soil drains poorly. Third, what was poor water is getting worse as sodium levels have increased dramatically.

The reason for the drop-off in quality is directly related to humans. According to Shawn Emerson, director of agronomy at the six-course Desert Mountain Properties, nearly 40 percent of the sodium in his irrigation water is from home use of water softeners.

Once in the ground, the sodium ions pull water away from the plants. Sodium that makes its way into the plant structure restricts the flow of other nutrients, causing the plant to starve itself.

Desert Mountain switched to effluent in October of 1998 and Emerson says problems with the turf developed shortly after. He estimates the cost of balancing the effects of the water is more than $100,000 a year per course.

To combat the problem, he is paying more in labor, fertilization and sod. Overseeding has become more expensive because ryegrass is not tolerant to salt, so his germination rate has been lower since converting to effluent. Some smaller-budget courses in the Scottsdale region have foregone overseeding because they don't have the means to maintain the rye with such poor water, Emerson says.

One way Emerson is combating sodium build-up in fairways — his USGA greens allow the sodium to leach away — is aerifying six to eight times a year at varying depths to increase leaching. Another way is to actually overwater at times in an effort to flush the salts out of the soil.

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Superintendents are often advised to add amendments to soils, which in turn affect fertilizer programs. For some, a switch from granular to liquid nutrients is needed to help the turf take up the fertilizer. For Emerson and others with larger maintenance budgets, the management practices are working to a small extent.

"We are holding off the sodium," Emerson says. "We're not alleviating the problem. You have to attack it from multiple directions."

For superintendents who find they have problems, Duncan says it may take three to five years before they can get the problems under control.

This year a respite for Scottsdale has come in the form of increased rainfall. From Dec. 1 to March 1, 12 inches of clean, low-sodium water fell, improving soil quality and plant health markedly. "The rain has removed about 30 percent to 40 percent of the sodium (in the soil)," Emerson says.

It's not just maintenance costs that have risen dramatically as the water quality has waned. Construction costs have also skyrocketed. Emerson estimates that an additional $800,000 was needed to build each of the last two layouts at Desert Mountain. To improve leaching, the courses were plated with 8 inches of sand. Also, irrigation heads were moved from spacing of 60 feet down to 55 feet in an effort to improve coverage and 60,000 linear feet of drain tile was installed compared to the usual 20,000 to help move water.

To try to cut down on costs of dealing with wastewater, more than 20 courses in the north Scottsdale area have banded together and are working with the city to come up with a solution to a problem that is also facing ball fields, parks and any other facility using the wastewater.

Emerson says one possible answer is the construction of a reverse osmosis plant, which is extremely expensive, about two to three times the cost of a standard water purification facility. Another plan is to educate residents about the problem in hopes of getting homeowners to change from sodium chloride water softeners to potassium chloride-based products. Sodium levels in re-used water would drop by 20 percent if half the residents make the switch.

"The key is people don't realize that not all water is good water for turf," he adds.

Emerson notes that it's important for the general public to understand that golf courses want to help in conserving water by using effluent and that improved water quality will actually reduce the amount of water needed. With the current situations, courses use large amounts of water — up to 150 million gallons a year — in efforts to flush the contaminants from the soil structure. Better water would not require as much irrigation.

Not every course dealing with effluent has it as bad as those in Scottsdale. Winter Pines Golf Club in Winter Park, Fla., has been using effluent since 1984, a year after it opened. Joe Ondo is the only superintendent the course has ever had, and his course's water comes directly from the Winter Park Estates Treatment Plant about two miles from the course. The course does not have retention ponds, and a contract with the treatment facility does not require the purchase of a predetermined amount of water.

According to Ondo, not only did the treatment plant start putting out good water but the quality has improved over the years. The course averages about 150,000 gallons a day.

"We have to use a little more gypsum," Ondo says. "Our biggest problem is the smell of chlorine more than anything else, and we can live with that."

Winter Park is built on a mud/peat base and the greens are pushup, the certified superintendent says. The course has some problems with drainage, but he says improvements in surfactants and aerifying equipment have helped him deal with that problem over the years. The heavy rains that accompanied the Florida hurricanes in 2004 helped to flush contaminants from his soil.

Because Winter Park hosts about 65,000 rounds a year, Ondo keeps the green and fairway heights of cut a little higher than most — greens at 5/32 of an inch and fairways at 5/8 of an inch — which he says helps the turf deal with the stresses related to effluent. It's Ondo's response — raising mower heights — that Emerson says is one of the many answers to irrigating with effluent.

But for the issues to be dealt with in a way that also protects the environment, Emerson says there must be input from across the golfing spectrum. "It's going to have to be an industry solution," he adds.

In Duncan's mind, there never will be a solution. He also says the situation is getting worse.

"It's as good as it's going to be," he adds. ■

PHOTO BY: LYNN PELHAM

"Our biggest problem is the smell of chlorine more than anything else."

JOE ONDO,
CERTIFIED SUPERINTENDENT
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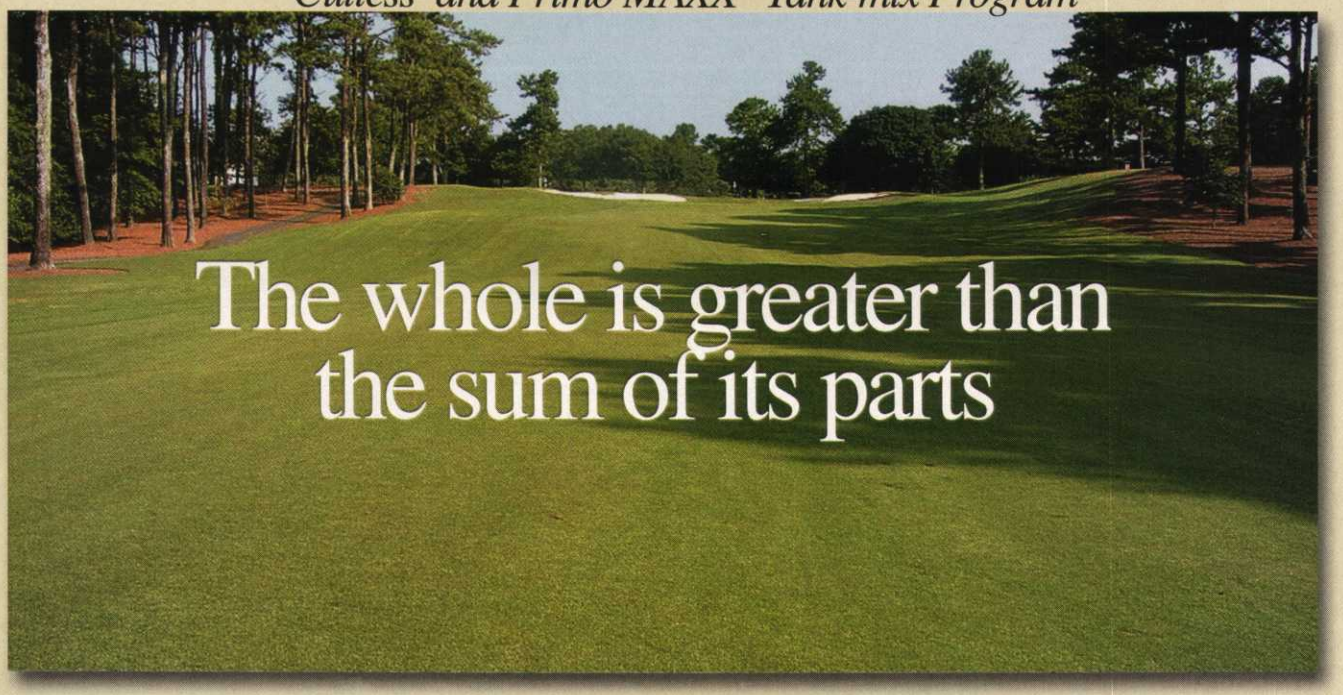

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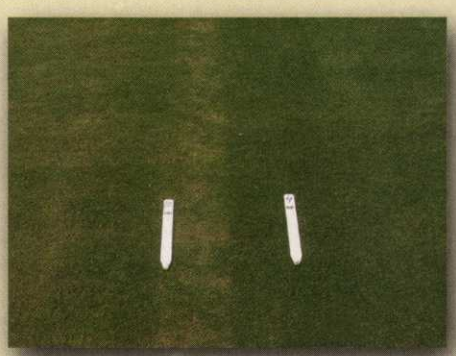

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On the Money

Financing and refinancing are hot topics, but it's tough getting a loan these days

BY ANTHONY PIOPPI

When the National Golf Course Owners Association (NGCOA) decided to hold a forum on financing at the Golf Industry Show (GIS), no one could have expected the response. The 75 slots were filled in no time, as were the 75 seats for an added session.

While they are hot topics, financing and refinancing also comprise a tender subject as it becomes more difficult to find money to build, renovate or refinance golf courses.

Refinancing, especially, has become nearly impossible but more desired as a result of the ongoing slump in the market, in part caused by overbuilding in many areas of the country.

Richard Singer, a consultant for the National Golf Foundation (NGF), says he has seen an increase in the number of owners approaching the NGF to learn how to go about refinancing.

"It was five to seven times a year maybe seven or eight years ago. But it might be 15 times a year the past few years," Singer says.

Refinancing is recommended when a course is not bringing in enough money to pay its debt, or there is a need to inject capital into an operation to improve its facilities.

Unfortunately, as the demand has increased, the supply of money has dwindled for two very good reasons, according to Doug Spear, president of Spear Consultants Ltd. in Cary, N.C. First, golf courses have turned out to be a bad investment. Second, fewer lenders are in the golf business. He points out that Nations Credit Corp., which once loaned money to some of the largest course players such as American Golf and ClubCorp, no longer deals in the golf industry.

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REFINANCING IS recommended when a course is not bringing in enough money to pay its debt or there's a need to inject capital into an operation.

PHOTO ILLUSTRATION BY: LAURA WATILO BLAKE

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"It's just difficult to find lenders that will refinance golf courses," Spear says in his no-nonsense style. "The reason is because golf historically has not been a good loan."

Spear, who has been in the golf business for more than 30 years, cites a sobering estimation. His guess is that nationwide less than 40 percent of golf course owners are current on their obligations.

Spear says the three factors for many golf course failures are poor management, under-capitalization and no marketing.

"They think they can do a 'Field of Dreams' — build it and they will come," Spear says.

There are other factors that lead to failures. Spear says very few owners understand the most important person on the golf course is the superintendent because he's the person in charge of the turf and the look of a course.

"It's not the general manager. It's not the golf pro. It's the superintendent," he adds.

Overly large clubhouses, especially for public golf courses, are another common problem related to financial problems. Spear calls them "white elephants" or "ego thrones."

The three factors for many golf course failures are poor management, under-capitalization and no marketing.

"The truth is you only need about 5,000 square feet [for a clubhouse] for a pay-to-play [facility]," Spear says.

Mom-and-pop facilities often run into a common roadblock when it comes to refinancing or selling. After years of underreporting sales in an effort to avoid taxes, owners find it impossible to accurately document yearly income or determine the value of their courses.

The lending game

There are some loans to be had but not many. "The logical thing to do is to go to a local bank where you have your account," Spear says.

In some cases, institutions will give a loan of $3 million if the borrower puts $1.5 million in a certificate of deposit.

Others make it even more difficult.

"They want your wife to co-sign and for you to pledge your firstborn and your dog," Spear says with a laugh.

Courses with a real-estate component have a better chance of getting money since the lots hold value.

In other cases, lenders will give out, as an example, $1.5 million if the course is worth $4 million. Making matters worse, the loans are 20-year notes that can be called after seven years in many cases, Spear says.

For a rare number of owners, the U.S. Department of Agriculture may be the savior. Through a program designed to bring jobs to rural areas (population under 20,000 in this case), the USDA will guarantee a loan up to 90 percent.

The plan does not allow for a straight refinance, but the loan will be extended to someone purchasing an existing course. As part of the process, however, an existing course must be turned into a not-for-profit and new ones must be built for that same reason.

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