Fist attacks effluent problems at the source

By ANDREW OVERBECK

BARRINGTON, Ill. — With more courses using effluent water for irrigation purposes, more superintendents are being forced to irrigate with less than ideal water. Untreated effluent can cause numerous agronomic problems due to its usually high bicarbonate and sodium levels.

Superintendent Ted Fist at Wynstone Golf Club here has eased these problems in one simple step by convincing homeowners to switch their water softening agents from sodium chloride to potassium chloride.

Under the terms of the development agreement, Fist is obligated to use wastewater from the 345 homes that surround the course. Wynstone's water supply, which is drawn from five wells, is very hard and has bicarbonate levels of 370 parts per million. As a result, 88 percent of the homes use water softeners and prior to 1999 sodium chloride was the predominant water softening agent. After the waste water runs through a two-stage lagoon treatment system, Fist has an irrigation source that has sodium levels above 300 parts per million, resulting in base saturation levels of 48.9 percent sodium and 20.9 percent magnesium.

"These water conditions created severe infiltration and soil structure problems," said Fist. "The turf will wilt very quickly in the summer under moderate stress conditions. Trees would defoliate. It was free water but it wasn't very good."

Back in 1990, the club installed an acid injection system to combat the bicarbonate levels, but Fist knew more had to be done to combat the sodium levels.

He first determined that the levels on the homeowner's water softeners were set too high and worked with the Wynstone

Continued on page 8

Klingstone protects bunker investment

By ANDREW OVERBECK

WAYNESVILLE, N.C. — When it comes to keeping bunker sand consistent and free of contamination, many courses are turning to liners and other materials.

One lining product recently received a patent for its unique polyurethane material that binds directly to the top layer of soil to create a barrier that eliminates contamination of bunker sand and sidewall erosion. Klingstone, which is manufactured by Green Mountain International, is applied as a liquid, allowing it to conform to any bunker shape.

"You apply it directly through a hose and once you wet out the surface it soaks in and forms a layer one-quarter to one-half inch thick. In 24 hours, it is dry enough to put sand in," said Dennis Galbreath. "It is a urethane polymer so it won't break down and it can take physical abuse."

While the product is more expensive up front, costing $900 for a 55-gallon drum, Galbreath said it reduces bunker maintenance costs

Continued on page 8

Achieving bunker consistency is a Herculean task

By KEVIN J. ROSS, CGCS

Other than the condition of greens, bunkers are the most talked about and controversial area of the golf course. Most of the talk is from golfers, and superintendents have all heard the comments: too soft, too hard, too wet, too dry, too much sand, too little sand, too inconsistent. While bunkers are a hazard, it is up to superintendents to ensure that they are a fair hazard.

The most important part is the sand quality.

There are very few places in the United States that have natural sand deposits that meet specifications for great bunker sand. Most premium bunker sand today is manufactured in a few locations across the country. These manufactured sands, along with a few rare natural deposits, make the process of finding great bunker sands very difficult and expensive.

What makes great bunker sand? The United

Continued on page 9