

MAINTENANCE



BRIEFS

GRANGER HEADS TO HAWAII

HOKULI'A, Hawaii — Hokuli'a has named Fred Granger as superintendent of its new Jack Nicklaus signature golf course. Granger, who has worked for courses such as Turnberry Isle in Miami, previously served as a consultant for courses throughout the southern United States. Hokuli'a is a private oceanside golf community just south of Kailua-Kona on Hawaii's Big Island.

SYNGENTA'S GREENPARTNERS POINTS GOOD FOR GCSAA SHOW

Greensboro, N.C. — Syngenta Professional Products has announced that golf course superintendents can now redeem GreenPartners P2 points to purchase full-pack registration to the Golf Course Superintendents Association of America Conference and Show held in Atlanta February 10 to 15, 2003. Syngenta also added GCSAA seminars, self-study courses, and several other educational opportunities to the GreenPartners reward offering. The GCSAA full conference package includes the opening session and reception, the golf general session, conference educational program, career development general session and the opportunity to visit with more than 700 exhibitors at the three-day trade show. It can be purchased by redeeming 35,900 GreenPartners points.

VALLEYCREST SIGNS RAMBLEWOOD CC

CALABASAS, Calif. — ValleyCrest Golf Course Maintenance has signed a maintenance agreement with the 27-hole public Ramblewood Country Club in Mount Laurel, N.J. The addition of this facility increases the company's maintenance portfolio in the Northeast region to nine. Situated in South Jersey, Ramblewood Country Club was designed in 1962 by Ed Ault. The course features bluegrass/ryegrass tees, fairways and roughs with Poa-bentgrass greens.

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 wastewater 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 20.6 percent magnesium.

"These water conditions created severe infiltration and soil structure problems," said Fist. "The turf would 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

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Fist's crew at Wynstone GC handles the delivery of 65 tons of potassium chloride to its 345 homes each year.

GCSAA, USGA to examine wetting agents

By ANDREW OVERBECK

LAWRENCE, Kan. — The Golf Course Superintendents Association of America and the United States Golf Association's Green Section are teaming up on what could be the first of several comparative research projects that provide scientific evaluations of products that are widely used by superintendents but not widely tested by universities.

According to GCSAA's director of research, Clark Throssell, the first study will address the efficacy of wetting agents.

"We are in the process of sending the scientific protocol to university scientists to assess their interest in conducting an investigation," he said. "The plans are to start field evaluations in late spring 2003 and continue through 2004. The goal is to have evaluations on localized dry spot at eight

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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



Co-inventor Tim Johnson installs Klingstone at Springhill Golf Club.

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

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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

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Maintaining consistent bunkers is nearly impossible

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States Golf Association considers seven factors when selecting bunker sand: particle size, particle shape and penetrometer value, crusting potential, chemical reaction and hardness, infiltration rate, color, and overall playing quality. Depending upon your location and climate, how you rank these factors may vary slightly.

However, there does seem to be one common denominator that may be the biggest factor, the fried egg test, or in testing terminology, the penetrometer value. The penetrometer value measures the energy required to bury a ball in sand. This value shows the ability of sand to resist the golf ball from burying, or in more scientific terms, its resistance to compression.

The penetrometer, itself, is a device that some are also questioning, particularly whether or not a better device is needed. It does not factor in ball spin, which has major input on the resulting lie in a bunker. Also, particle shape is the sand characteristic that influences the penetrometer value the greatest. Highly angular sand compacts easily, and therefore has a high resistance to burying a golf ball. However,

this sand would also have a tendency to become a very firm playing sand, which may be a concern to some players. On the other side of the spectrum, well-rounded sand has a high tendency to bury a golf ball, due to its inability to compact and to



Washouts such as this one can wreak havoc on bunker consistency.

be very unstable on bunker faces.

Unfortunately, even though sand quality is the most important factor, it is also the most difficult to solve. According to

Dr. Norm Hummel, from New York-based sand and soil testing firm Hummel & Co., there are probably only a half a dozen sands in the United States that meet the criteria for excellent bunker sand.

"Of all the sands we test for bunkers, we only approve about five percent that are sent, and even some of those are marginal," he said.

Do all golfers like the same sand? Unfortunately, it is not that simple. PGA Tour professionals and most low handicap players prefer a firm sand, allowing spin to be produced on the ball. Slightly softer sand is preferred by a higher handicapper who cannot develop the clubhead speed needed to get through a firm sand bunker shot. These two different types of sand also receive comments from players. If you have firm sand, disgruntled players will insist there isn't enough sand in the bunker. With soft sand, players insist there is too much sand in the bunker.

This brings us to consistency. To start with, nobody said bunkers should be consistent and most agree it's nearly impossible. Golf course architects don't clone one type of bunker to be used throughout the course. Bunkers are designed differently to offer various strategies to a hole, and various penalties to a player. Then the argument is, "Well, sure they are different in design, but the sand should be consistent."

But since there are so many factors affecting the sand condition in a bunker, even with the best bunker construction and the perfect sand, you probably won't have perfect consistency. Some of the factors that affect this consistency are sunlight, angle to the sun, shade, irrigation water, bunker depth, and drainage, along with others.

Another problem for obtaining consistency is shot trajectory into a bunker. Each hole is designed differently, and different shots enter bunkers differently. The worst angle a ball can enter a bunker is a 90 degree angle to the sand slope. This angle offers the least reaction between the ball and the sand. Also factored in should be the speed of the ball when it hits the sand.

For example, one of the worst scenarios is a par-3 that measures 130 to 150 yards, slightly downhill and has a southern exposed/angled green complex. This offers sand that stays dry, a very high golf shot trajectory, and the golf ball hitting the sand at about a 90-degree angle. This is one of the worst cases for potential fried egg lies. Even sand with decent specs can have trouble overcoming these factors. A totally different scenario could be a par-4 that measures 440 yards, with an uphill second shot. Most players are hitting long irons and fairway woods for the second shot to a green complex that faces north and has plenty of shade. These bunkers would offer little chance for a buried ball, even with poor quality sand. The playability would also be totally different (or inconsistent, as golfers say) than the above-mentioned par-3.

Another factor that should be mentioned is bunker contamination from washouts. Many parts of the country are susceptible to two- to three-inch downpours in 20 minutes. These downpours can wreak havoc on bunker conditions. Even the best-built bunkers, with the finest drainage, can sometimes be no match when hit with a rain storm. When a bunker is washed out and becomes contaminated with silt, its playability changes immediately. Most clubs cannot afford to bring new sand in to replace the contaminated material, so the bunker is repaired, and the club lives with it.

Even with good sand, construction and maintenance, achieving true bunker consistency is nearly impossible. But if not all greens are consistent, why should bunkers have to be? ■

Klingstone patented

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in the long-term.

Tim Johnson, superintendent at Tom Fazio-designed Springhill Golf Club in Wayzata, Minn., was instrumental in developing the application techniques and procedures.

"I was project manager of the course and noticed this product called Mountain Grout Soil Stabilizer and I knew we were going to have trouble with our bunkers here because of our sandy clay soil," said Johnson. "The sand we were using was rounded so I knew that if I put a liner in it was always going to be exposed, so we tried it out."

Since the product was initially developed to fill spaces between concrete foundations and soil, Johnson worked with Green Mountain to tweak the formulation to make it appropriate for bunkers. He is listed as the co-inventor of the product.

"We have used it for three years and it has certainly saved us in sand," Johnson said. "It doesn't keep sand on the face, but it keeps it from being contaminated. We haven't had to replace sand, even after the four feet of rain we got this summer."

While Johnson put the liners in during construction, many superintendents are turning to Klingstone as a part of renovation work.

Superintendent Brian Anderson at Nemaquin Woods Resort has just wrapped up a full-scale bunker renovation that he started late last fall in preparation for the PGA Tour's 2003 84 Lumber Classic of Pennsylvania.

"They required us to redo our bunkers because the sand was contaminated and had a lot of silt build-up," said Anderson. "They wanted better sand and better consistency, so we are using U.S. Silica's VFB premium white sand that meets the Tour's specifications."

To protect the new sand investment, Anderson decided to go with Klingstone on the Pete Dye-designed layout.

"We have gone through 160 55-gallon drums on our six and a half acres of bunkers," Anderson said. "That's the only problem, we have big bunkers."

"It is twice the cost of geotextiles, but it is easier to work with and will keep the sand from washing out," he added. "The product will pay for itself in the long run." ■

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