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Harmony In Growth

BUNKER MANAGEMENT

water drainage patterns, cloud the issue even more, making bunker consistency impossible for most courses.

"It's darn near impossible to get perfect consistency from bunker to bunker," Miller says.

"Conditions change from hole to hole in terms of elevation and how the property drains."

As far as the types of sand desired in bunkers, a round sand will allow the water to pass through more easily and would be ideal for bunkers in



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Subsoil makeup and design contribute to the effectiveness of a bunker's drainage. Photo: Professional Turf Products

low areas of the course. Angular sand has a small amount of silt in it, allowing it to pack tightly.

"You can have two different types of sand on a course, but that's where the art comes in," Miller says.

THE IMPORTANCE OF DRAINAGE

Drainage is the key to keeping bunkers consistent and playable. Much of that depends on the drainage that's installed, subsoil makeup, how the bunkers are designed (flat bottomed or flashed), if any surface runoff comes from outside the bunker into it and sand selection.

When Ballyowen opened, there wasn't enough drainage in the bunkers, and they were a real headache, Sparta says. Now that additional drainage was added, they drain fine, and there are few bunkers that need to be pumped after a rain.

"You can never have enough drainage," he says. "I like to see a trunk go up through the belly of the bunker and laterals coming off of that every 15 feet or so."

Because bunkers are battered constantly by the elements and player expectations have risen so sharply, superintendents often face costly renovation projects when bunkers become extremely contaminated and drain poorly. Whether done by a contractor or in-house, it's a time-consuming, costly undertaking.

"We only have 39 bunkers on the course, but caring for them was very time consuming," says Tim Mack, superintendent at Guyan Golf and Country Club, a 1922 layout in East Huntington, W.Va. "The biggest problem we had was poor drainage and contamination. A lot of our drainage systems under the bunkers were shot

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BUNKER MANAGEMENT

or poorly installed, and the pipes were filling up with silt and clay."

Mack and his crew cored out the bunkers, removed clay that had built up in some areas and added clay walls in other bunkers to facilitate drainage. They placed perimeter drainage at the base of the slopes on the edges of the bunkers to prevent water from flowing down and sitting at the low points of the hazards. The crews installed new synthetic liners in the bunkers to prevent contamination from below ground and refilled the hazards with angular sand, which Mack believes is the best for the club's players and maintenance practices.

"What we did before the renovation was do four of our worst bunkers using two different types of liners and sand to see how they performed," Mack says. "We got feedback from members and our crews, and then we chose the liner and sand we wanted to go with for all the bunkers."

The project took about four months to complete and cost around \$80,000, and Mack says that was much cheaper than having a contractor come in and do it.

GROUNDWATER CONCERNS

Brian Benedict, golf course superintendent at the Seawane Golf & Country Club in Hewlett

Harbor, N.Y., undertook a massive renovation of the course's 160 bunkers several years ago. The project was challenging because the course is close to the Long Island Sound and some holes are almost at sea level.

"We did six and a half acres of bunkers," Benedict says. "Our groundwater is, in some instances, only 30 inches below the surface, and that meant we couldn't cut the bunkers too deep or we would have been in the groundwater. We went in with a bulldozer and found where the groundwater was and built up from there. We wanted to be about 24 inches above the groundwater level and have six to 10 inches of sand in the bunkers."

Because of Seawane's location, it's sometimes a victim of extreme high tides. Benedict chose to use flexible duckbill valves on drainage pipes in his reworked bunkers that allow water to exit, but not enter, when flooding occurs.

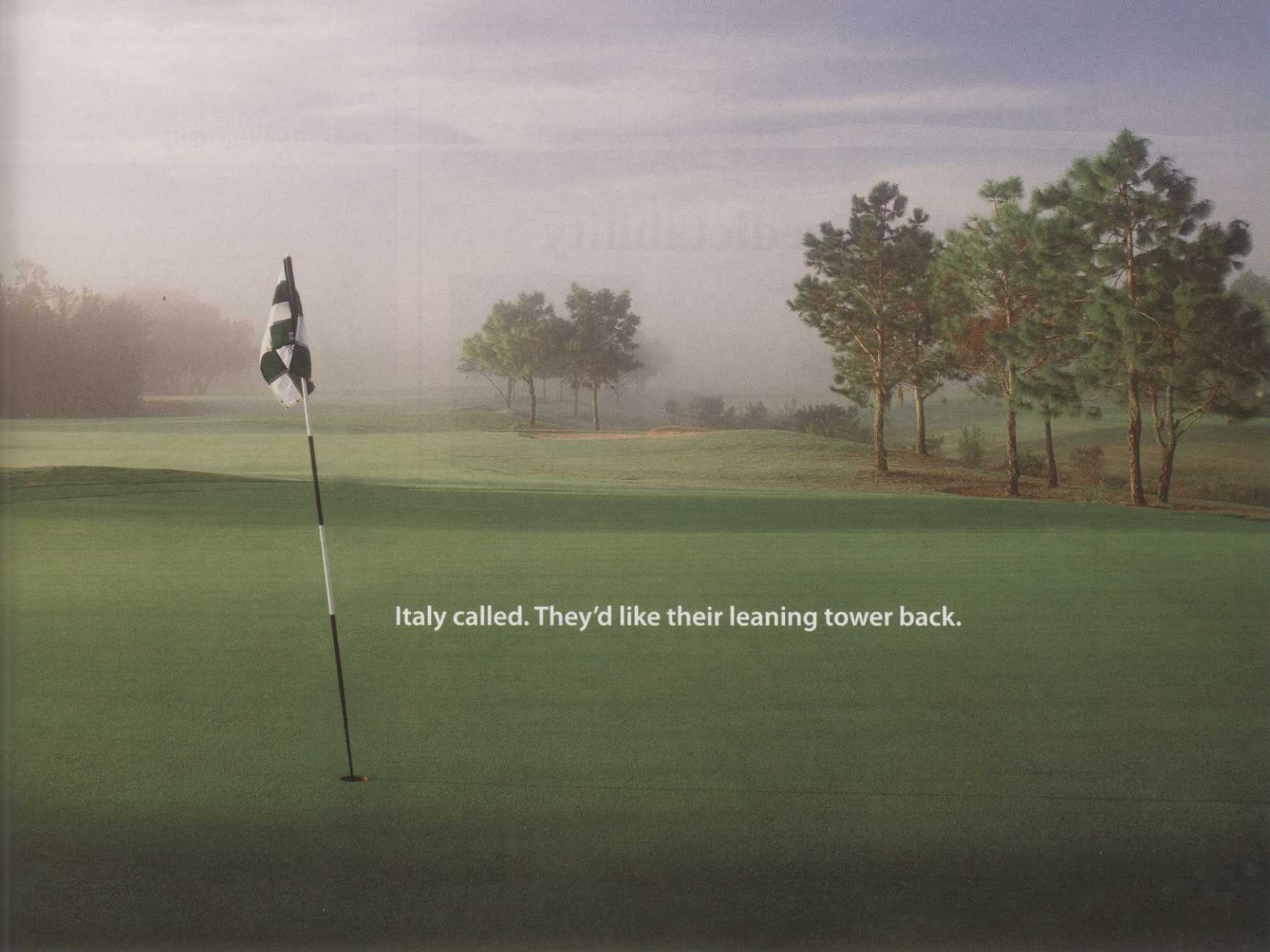
"Because we went to the duckbills, the bunkers have become a lot firmer than they used to be," he says. "The biggest thing for us here is water displacement. If we get saltwater onto the course, we need to get that into the ground as fast as possible."

Renovating Seawane's bunkers took somewhat of a trial-and-error approach.

"We have interior holes that are probably at

During the renovation of the 160 bunkers at Seawane Golf & Country Club, bunkers couldn't be cut deep because of their proximity to groundwater. Photo: Seawane Golf & Country Club





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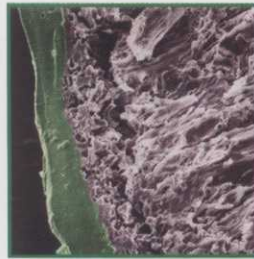
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BUNKER MANAGEMENT

least a half mile from the nearest canal or beach, where the groundwater is only 19 inches below the surface," Benedict says. "It all depends on the hydraulic pressure of the land. We would cut in, and, if we found a wet spot near a greenside bunker, we would fill it up and make it higher. Each bunker complex has its own drainage system, and every hole was customized so it would enhance the playability of the course."

Benedict opted for angular sand in his bunkers because that type of sand is resistant to high winds that buffet the course most of the year.

REDUCING CONTAMINATION

Rutan is undertaking an intensive, multiyear project that includes renovating and upgrading all 122 bunkers scattered about the Robert Trent Jones Jr.-designed course built in 1989. So far, between 50 and 55 have been completed, and the work is being done in-house over the course of several years. It's a cost savings but also very time consuming, Rutan says, adding his crews spend 60 to 70 man-hours just getting water out of bunkers and moving sand back where it should be after a heavy rainfall.

This is the second or third time Rutan and his crew have tended to the bunkers, with most of the problems relating to sand contamination.

"We've gone to a unique idea for drainage," he says. "If you can picture a peace symbol, that gives you an idea of how we have installed perimeter drainage around the edges of the bunkers and funneled the water through a herringbone design down through the middle of the bunker. We've found that this configuration cuts down on contamination and has worked effectively."

It takes Rutan's crews an average of three or four days per bunker to complete the restoration work, which is undertaken mostly during early spring and late fall so it doesn't interfere with play.

EVENTUAL DETERIORATION

Perhaps the most sobering aspect of bunker management is there are no shortcuts superintendents can take to prevent eventual deterioration.

"Over time, bunkers are going to deteriorate," Sparta says. "If the bunkers are designed right, constructed right and you have the right sand selection, you stand a fighting chance of delaying a large capital expenditure to your bunkers. But sooner or later you'll have that large capital expenditure that you'll have to make on them." **GCI**



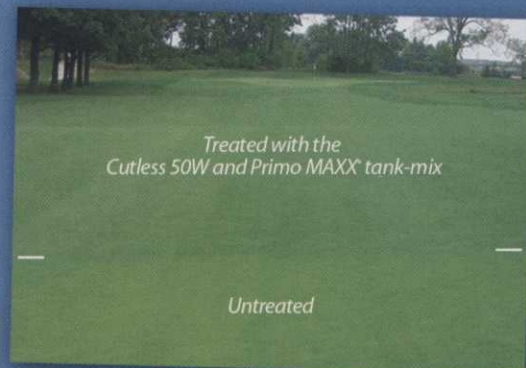
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¿Habla español?

Tips to learn Spanish for turf

As the number of Spanish-speaking employees continues to increase in the green industry, supervisors and managers are exploring different ways to remain effective in their operations. The challenges remain the same: overcoming safety, quality and training barriers because of language and cultural differences. Learning and speaking practical Spanish can help mitigate these challenges, but many supervisors and managers believe it's an intimidating task. The following tips can improve superintendents' odds for a successful and meaningful approach to learning Spanish.

BY
ARTURO
CASTRO

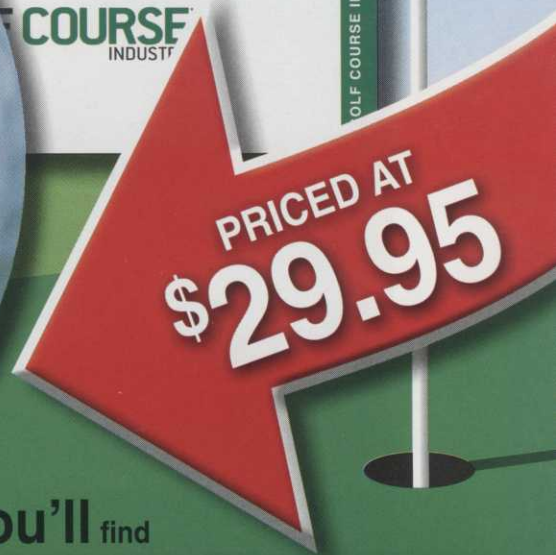
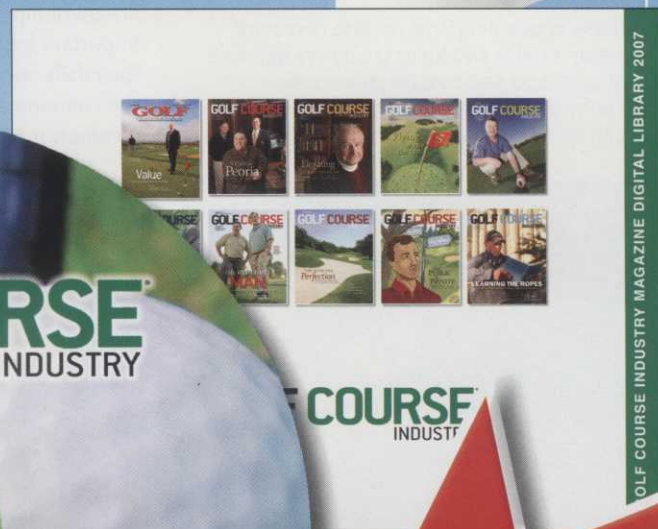
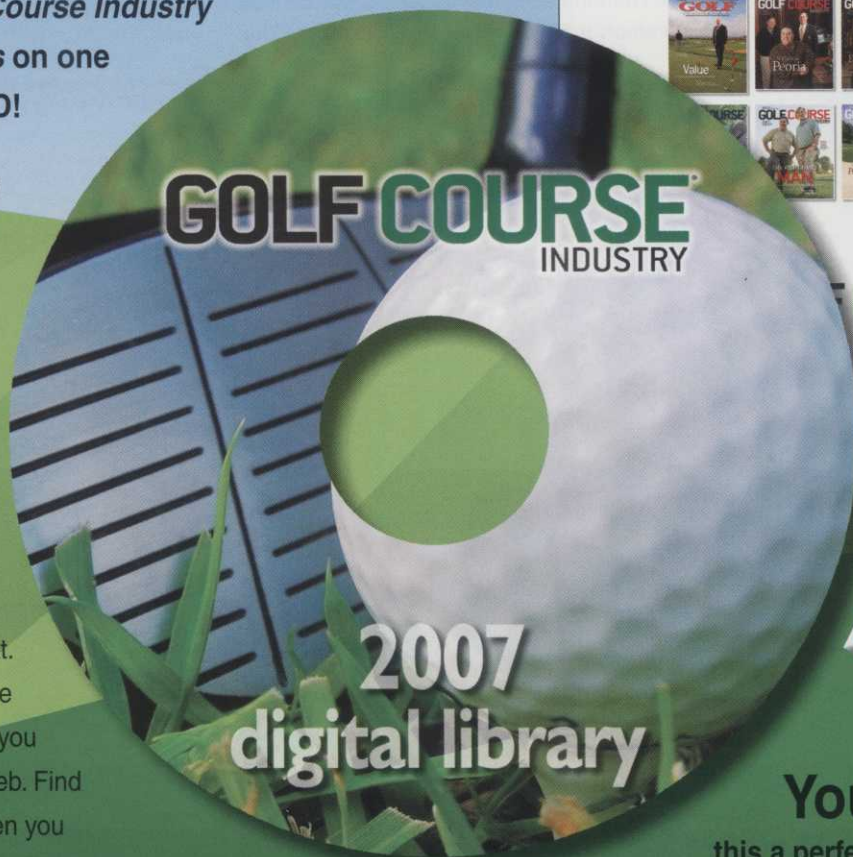
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LEARN WHAT YOU NEED

If it isn't relevant to your job, it's more difficult to apply and learn. A class at a community college or tapes at the bookstore might focus on ordering food at a restaurant or catching a cab. This usually leads to discouragement for students because they're not able to apply the lessons immediately.

Paul Pimsleur, Ph.D., former head of the language department at The Ohio State University, developed a memory recall system for learning a second language. His language programs are designed in a way to remember a concept or word right before you're likely to forget it.

Some superintendents need to overcome safety, quality and training barriers because of language and cultural differences. Learning and speaking practical Spanish can help mitigate these challenges.

Pimsleur also states the human brain tends to store information in short-term, long-term or temporary memory. The destination is based on how important the information is to survival.

These principles helped develop a self-instruction language program – Spanish for Golf Course Management by Spanish Systems. Throughout the years, superintendents have found it helpful because it teaches exactly what's needed to be said. With this method, the principles of relevance and frequency are observed.

CREATE YOUR OWN PROGRAM

Before the content for the Spanish for Golf Course Management program was designed, dozens of superintendents were asked what was important for them to say in Spanish related to their daily operations. Most of them mentioned the common assignments for the day and the common mistakes made by Spanish-speaking

employees who couldn't be trained in English. Then a list of all the items was created, and the items were turned into a set of basic commands. Next, these commands were converted into questions for follow-up, statements for correcting tasks and compliments for praising the corrected task. For example:

- Command – Check the oil in the morning.
- Follow-up – Have you already checked the oil?
- Correction – It's necessary to check the oil in the morning.
- Praise – You always check the oil in the morning, thank you.

You can ask any of your bilingual employees to translate these statements. Focus on a few of them at a time and use them frequently. Make sure your list starts with those actions that are most important and carry small cue cards to assist you.

