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Like other chemical manufacturers, Syngenta reps support superintendents in various ways.

“The sale of our products and our relationship with our customers doesn’t end at the cash register,” Ravel says. “Our local tech reps know the area – regarding soil and environmental conditions – they work in. They work with superintendents and cooperate with many local universities to run soil tests, for example.”

Syngenta’s vehicle to get its products to market are its distributor sales reps, who benefit from working one-on-one with the company’s technical sales reps.

“Our technical sale reps will do road shows and sit in with the distributor sales reps to help explain new products,” Ravel says.

The distributor sales reps, who outnumber the tech reps 45 to one, will have more contact with superintendents than the tech reps, who write agronomic programs.

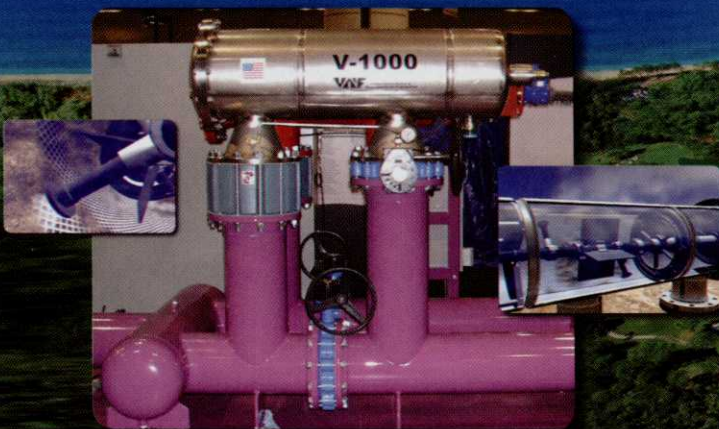
DuPont’s reps attend regional superintendent meetings and present information about market needs, answer questions about herbicides and overseeding, and suggest ways superintendents can make products last longer and suggest whether they should use surfactants or not.

The company is anticipating expanding its sales force in 2008, says Nancy Schwartz, marketing manager for turf professional products. **GCI**



University researchers and research cooperators are involved early on with chemical manufacturers’ product development. Photo: BASF

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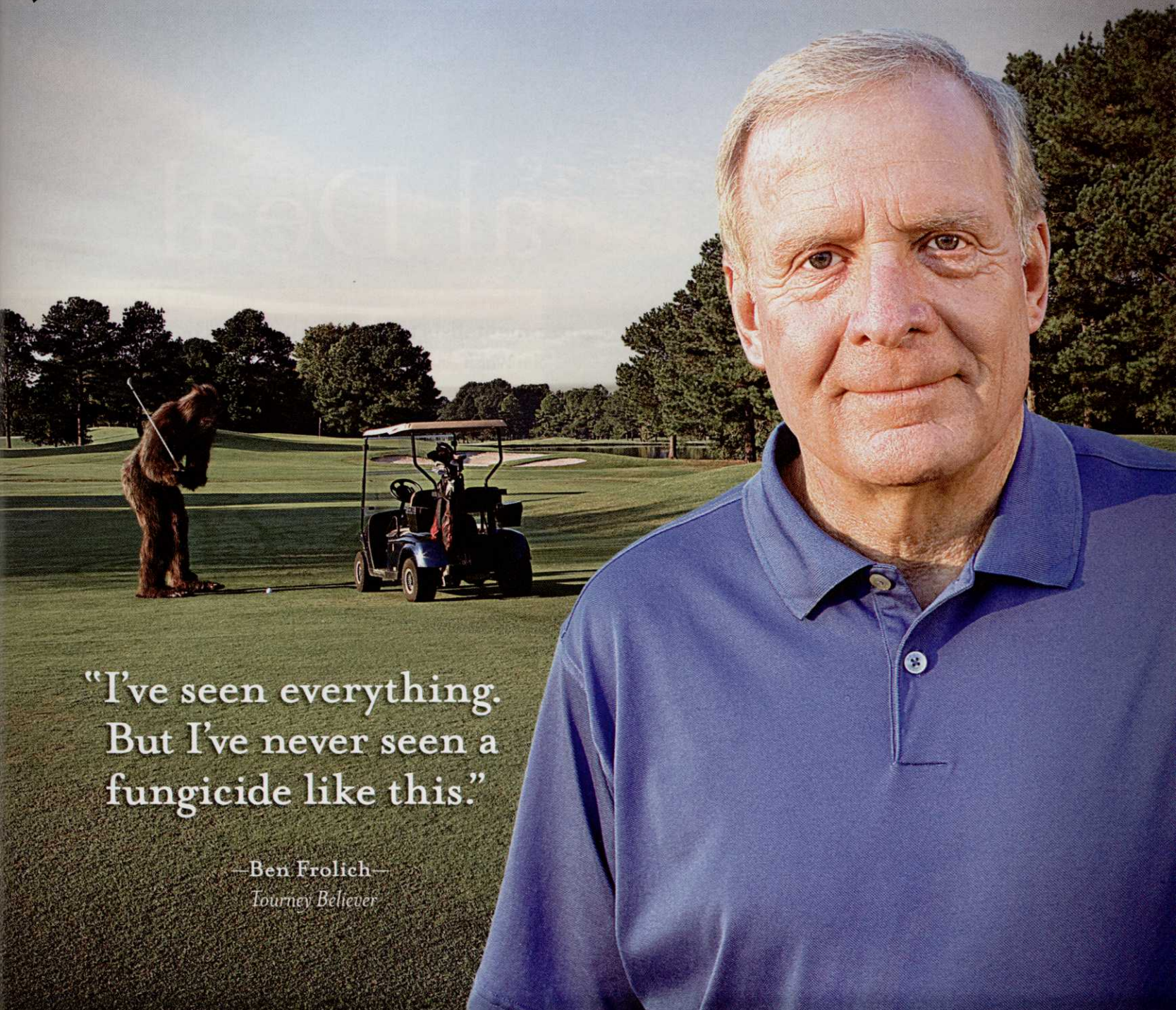
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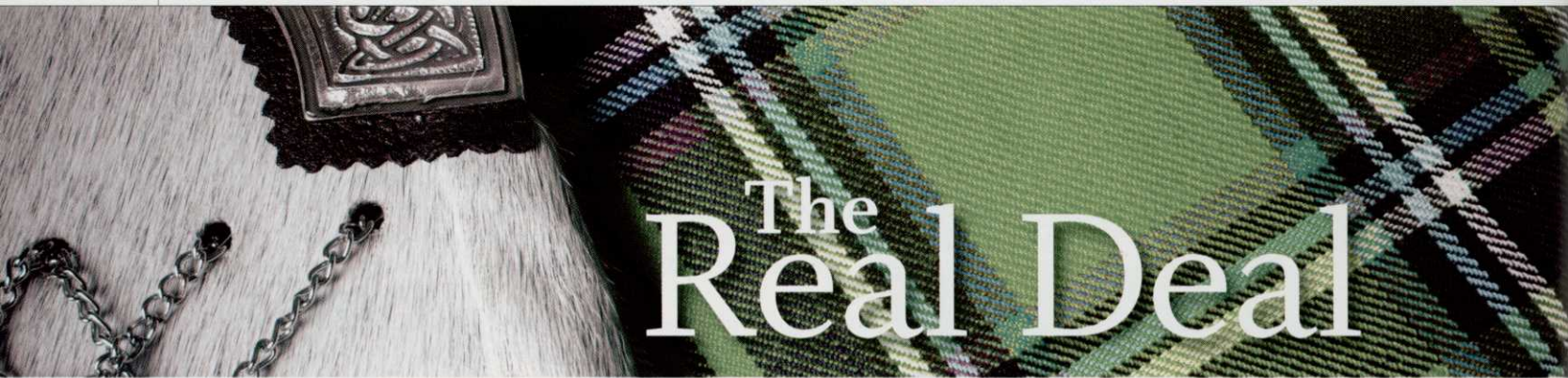
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# The Real Deal

A development team works closely with environmentalists to build a true links course in Scotland.

By John Walsh

Imagine building a golf course in which the only earth allowed to be moved was to shape the greens and tees. Imagine cutting, moving and replanting acres of sod by hand. Imagine building that same course where an ecologist watched your every move because you were shaping a golf course on environmentally sensitive land.

These are the kinds of restrictions and scrutiny that were involved when building Machrihanish Dunes Golf Club in the tiny village of Machrihanish just outside Cambeltown on the Mull of Kintyre, a peninsula on the west coast of Scotland. Certain aspects of construction were delayed because of environmental concerns, but core construction was completed in about three months. Acquiring the permits and conducting environmental surveys needed to build the golf course took two years.

The landscape, which has been created over time by the movements of wind, sand and sea, is one of the last remaining natural links sites in Scotland, according to one of the club's owners, businessman Brian Keating. (There are 270 authentic links courses in the world.) Machrihanish is considered the first 18-hole golf course to be built on the west coast of Scotland in 100 years, Keating says. The course abuts an existing course, Machrihanish

Golf Club, which was designed by Old Tom Morris in 1879.

Keating sold his old business in the high-tech field several years ago and was looking for a new business that would allow him to play more golf. A friend of his had been trying to convince him to invest in golf. Eventually, Keating met with the owners of the land on which Machrihanish sits and struck a deal.

"I've been involved in complicated projects before," he says. "If I was going to be successful, I needed to work with the right people who knew their stuff and had experience."

Those people included golf course architect David McLay Kidd and his associate Paul Kimber at DMK Golf Design; Euan Grant, former greenkeeper at St. Andrews; David Southworth, president and c.e.o. of Southworth Development; and a well-respected environmentalist/ecologist, Carol Crawford.

"We were on top of it all the way," Keating says. "I spent time working in the community and received their help promoting the economic benefits of the golf course."

In choosing DMK Golf Design, Keating started with a short list of architects who designed true links golf courses ranked in the top 100. He

## AT A GLANCE

### Machrihanish Dunes Golf Club

**Location:** Machrihanish, Scotland

**Web site:** [www.thewaygolfbegan.com](http://www.thewaygolfbegan.com)

**Project type:** New construction

**Cost:** Between \$2 million and 2.5 million

**Course type:** Links

**Construction started:** June 2007

**Course opening:** August 2008

**Architect:** David McLay Kidd

**Developer:** Brightside Leisure Development

**Owners:** Brian Keating, Pierce Flynn  
and Southworth Development

**Management:** Southworth Development

**Superintendent:** Euan Grant

**Construction manager:** DMK Golf Design

**Turfgrass on greens:** a mix of chewings and  
slender creeping red fescue

**Turfgrass on tees:** Red fescue and bentgrass

**Turfgrass on fairways:** Native fescue



chose DMK because it committed to being on site and Kidd, who designed Bandon Dunes, played on the same beach as a youngster.

“For me, this project has special meaning because I spent summers there,” he says. “I knew the dunes really well.”

Before development, Keating and company did their homework, which took a year.

“We conducted a complete environmental survey,” he says. “I hired the top environmentalists. We were well prepared before we presented our plans to build the course.”

Keating presented his plans to the Royal & Ancient as a courtesy, a regional council and the Scottish National Heritage, which is somewhat equivalent to the U.S. EPA.

The topographical and environmental surveys and permitting costs totaled about a half million dollars. The total spend to build the golf course was between \$2 million and 2.5 million.

### SO SENSITIVE

Machrihanish, which is scheduled to open in August 2008, is the first course built on a Site of Special Scientific Interest – a conservation designation denoting a protected area in the United Kingdom. SSSIs are the basic building block of nature conservation legislation, and most other legal nature/geological conservation designations are based on them. In this case, rare orchids grow on the site, links land is highly protected in general and a defunct Navy base near the property had caused environmental damage years ago. In short, the site was considered extremely sensitive. Because of the sensitivity, no pesticides are allowed to be applied to any part of the golf course except the greens and tees.

“In the U.K., the highest environmental designation is the SSSI,” Kidd says. “Quite often, you work on golf course projects of which part is an SSSI

The entire Machrihanish Dunes Golf Club sits on environmentally sensitive land deemed a Site of Special Scientific Interest by the Scottish National Heritage. Photos: Southworth Development LLC





Because of the linksland's environmental sensitivity, acres of sod were cut, moved and replanted by hand. Photo: John Walsh

or you're next to an SSSI site. In Machrihanish's case, the whole golf course is an SSSI site. What we had to learn was why the site was an SSSI.

"We worked with environmentalists who surveyed the ground," he adds. "They gave

us detailed maps of ecological sensitivity. We looked at it through the environmentalists' eyes. Paul Kimber was incredibly patient with the environmentalists, and that's not his nature. Although the environmentalists had veto power, we still respected them. The piece of land was worth fighting for."

**AU NATURAL**

Designing Machrihanish Dunes was different

compared to most projects. It was more like laying out a golf course through a great site, Kidd says.

"The landscape is what it is," he says. "No doubt we had a fantastic site. I can't take credit for God's work, but we did a fantastic job negotiating with the environmentalists and getting permits."

Kimber, who has been with Kidd for eight years, says design, in general, is done on the ground.

"Golf design isn't like a building – it won't fall apart," he says. "It's a work of art. It doesn't end up exactly as you thought."

Because of the SSSI designation, no erosion was allowed to occur during construction. To build the greens and tees, only one machine, a backhoe, was used. The labor cost was increased by the environmental sensitivity. Most of the development required a lot of hand labor, concentrating on greens and tees. What made it exceptionally detailed was that when sod was cut from a certain area, it had to be relayed in the exact same manner. For example, the ecologist stipulated that if the sod was cut from a south-facing dune, it had to be replaced on another south-facing dune. Topdressing and rolling helped the patches of sod grow together.

The 259-acre piece of land on which the course sits is overpopulated with rabbits, so the herd is being thinned. The only place where bunkers could be placed are where the rabbits had eaten into the ground.

"We'll wait to see what the bunkers do," Kidd says. "If they collapse, we'll fill them in."

After the course opens, Kimber says the design team will play and review the course to see if any tweaks, such as drainage improvements or tee-angle changes, are necessary.

**LET IT GROW**

The challenge of creating something out of the natural landscape is the reason why Grant took the job at Machrihanish, which he says is more

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interesting than the St. Andrews job. While growing-in the course and maintaining it, Grant and his seven-member staff can't maneuver all over the course because of the sensitive areas. They have to travel through marked paths. The fairway can't be cut shorter than 0.175 inch, and the rough won't be mowed at all – there will be 80 sheep on the property to help maintain the rough and fairways from October through April. Even the locations of the fairway edges were debated with the ecologist, Kidd says.

Grant says the grow-in is taking longer than normal because of the open land and because he and the staff are working with pure sand and are using one-half to one-third the fertilizer used in a typical grow-in.

"We're giving the plant just enough fertilizer to germinate and grow," he says. "The nitrogen rate for a grow-in is normally 250 to 300 kilograms per hectare. Right now we're at 90 kilograms per hectare. This is just enough to ensure germination while keeping the fescue plant strong in its native environment. We will come down to 30 after grow-in is complete."

Grant also is applying trace elements or micronutrients during the grow-in.

To date, Grant hasn't seen disease, which he

says is surprising because of the damp climate. However, there are grubs in the area (the club next door has problems with them), but they're not effecting the grow-in. As for weeds, the greens and tees are fairly clean, Grant says. There are weeds in the green surrounds, but Grant isn't allowed to treat them because the use of pesticides, organic or synthetic, is off limits. The amount of weeds in the fairways, which aren't allowed to be seeded, should decrease once Grant starts light scarification and topdressing.

"We can treat greens and tees with anything, but everything else I have to live with, which is frustrating at times," he says. "The toughest challenge is, as with any job as greenkeeper, to establish the grass amid the exposed geography. The wind is constantly blowing, and it's fairly damp."

The easiest aspect of Grant's job is working with a pure sand soil profile.

"I haven't seen a puddle," he says.

Working with DMK has been a great experience for Grant.

"A lot of developers wouldn't employ a superintendent from the outset," he says. "There's an expense for them. But because I'm there every day, it has taken a lot of pressure off everyone.

And I'm put at ease because the architects can make decisions daily."

Grant reminds those inquiring about the project that his staff has shifted acres of turf by hand and walked along the site with the ecologist to make sure everything is done as naturally as possible.

"It's frustrating at times, but we made a point early on that we would do it this way," he says.

#### ONWARD

Green fees for the public golf course, which will feature five sets of tees ranging from 7,222 to 5,389, will be equivalent to \$157. The clubhouse is expected to be completed by 2009.

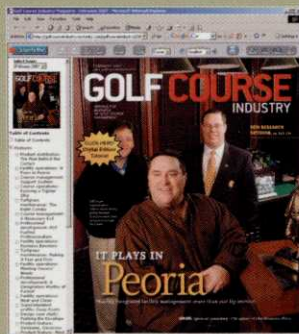
Southworth Development is managing the preopening marketing for the property and is setting up its operation. Southworth, which has been involved in 25 golf course projects, was contacted by Keating for the project because he wanted to work with the company that developed Liberty National Golf Club in New Jersey.

"It's been a smooth ride so far," Southworth says. "David and Brian have a good handle on things. This was the perfect opportunity to take our first step into Europe, and we haven't looked back since." **GCI**



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BY RICK BRANDENBURG, PH.D.

## Behaving badly

### Soil insects' below-ground activity affects pesticide applications

In most areas where high-quality turfgrass is maintained, insects typically rank third behind weeds and diseases on a turfgrass manager's priority list. But insects cause serious turfgrass damage and in some areas are the biggest problems that need to be addressed.

The cost of controlling insects, especially insects that live in the soil, can be quite significant. The cost is often related to the fact that insects living in the soil often require a higher recommended rate of insecticide than those insects that live above the soil. The soil and thatch often

make it more difficult for the insecticide to get the job done.

However, effective management of soil insects such as white grubs and mole crickets is challenged by more than just the fact that the insects are surrounded by soil and often protected by thatch. Insects behavior, which is something we typically can't observe, can create many headaches. These insects are often able to survive a wide range of environmental and man-made stresses. Insects' survivability isn't based solely on the insect's hardiness. While

many insects are well adapted and designed to tolerate some severe conditions of drought and temperature, the physical adaptations might not be the only characteristic they possess to help them cope and survive.

Insects also have a hard, waxy cuticle or skin and can withstand severe stress. In addition to the physical features of insects that make them tough, many also have behavioral characteristics that might help them avoid stresses. For many years, we've known and observed that some soil insects might burrow deeper in the soil



Mole crickets are a serious golf course pest worldwide. Their underground life and mobility make them more difficult to detect, monitor and manage. Photo: N.C. State University