Airway to heaven

The wet weather that hit Britain this winter is a reminder that turf needs to be aerated – and greenkeepers across Britain are heeding this call, reports **James Sprightley**

Britain's becoming an aeration nation as greenkeepers strive to revitalise rootzones and keep an open top surface to encourage drainage.

Aeration's certainly the secret to keeping a course dry and encouraging a healthy rootzone, believes Andrew Fowler, head greenkeeper at Garforth Golf Club, located between Leeds and York.

He was soon refocusing the maintenance strategy after coming in post three years ago at the 18-hole parkland course, he recalled. "I inherited a large Verti-Drain machine but I decided that we shouldn't be using something this size on our greens, it was more suited to the fairways.

"I looked for something more lightweight that we could haul with one of our Kubota compact tractors and that came within our machinery budget." He chose a Toro ProCore SR54-S and the decision has paid off for him, he explained.

"I like to aerate the course once a month between November and April and the Toro serves our purpose well for greens' work – it's easy to work with and we can quickly adjust the rollers. An eight-inch tine depth suits us fine, although we could extend that to 10 inches if we wanted to," he explained.

"Our greens are far healthier now, with a deeper, stronger rootzone of five to six inches and they are drier and playable virtually all year round, which is a key consideration as the club wants the course open as much of the year as it can."

A Toro man from his previous greenkeeping posts, Andrew remains true to the brand. "All our cutting machines are Toro and the ProCore continues to do the thorough, reliable job that I expected it would do. Our mechanic tends to replace the tines once they wear to a six-inch depth but I could call in Russell's, the local Toro dealer, who maintain our cutting machines, as their service record with us is excellent," he said.

Like neighbouring Moor Allerton Golf Club, Andrew calls in contractor Alan Chappelow Sports Turf once a year to Verti-Drain the fairways, usually down to 10 inches. "They have the machinery to make short work of the course," he said. Meanwhile, the greens' team are busy with their SISIS spiker once a month to aerate the fairways down to six to eight inches.

The greens also receive their annual treatment with the club's Robin Dagger, which injects air some two feet into the subsoil to shatter it and ease any compaction.

All in all, Andrew ensures the course receives a pretty thorough aeration regime right through the year by various means – as he said: "Aeration is vital to ensuring your course stays dry, healthy and playable through the year. Undertaking it regularly is key to our strategy."

The cry across the courses increasingly is 'aerate whenever you can' as the process can bring a host of

Left: The Verti-Drain at Barton-on-Sea Golf Club. Here: Andrew Fowler, head greenkeeper at Garforth Golf Club

benefits for greenkeepers – and golfers. Well-drained, aerated turf is less likely to be compacted, allowing roots to penetrate deeper and grow less reliant on moisture higher in the soil profile.

However, overly wet or dry turf may not present the ideal environment for aerating so greenkeepers are wise to plan ahead if at all possible to undertake the work when prevailing conditions are most favourable.

The Redexim Verti-DrainTM has become almost standard issue on many courses, with the greens' team tining the course typically in spring and autumn.

Soil substrates can differ markedly from course to course but even when greenkeepers are blessed with free-draining soil, aeration can come into its own, as it did at the cliff-top Barton-on-Sea Golf Club, Hampshire.

"We have generally good draining soil across our 27 holes but there are one or two problem areas where aeration helps immensely," said course manager Tony Gadd.

"This is our third season with a Verti-Drain 7521, [supplied by New Forest Farm Machinery, local dealer for Charterhouse Turf Machinery] and it has made a huge difference to the overall life of the course. We now have deeper roots and the fairways always look good."

Verti-Draining provides wide flexibility for greenkeepers wanting to vary tine depths across differing areas of the course. "A key aim should be to produce deep holes using Verti-Drain tines down to between 10 and 12 inches," advised Nick Darting of Charterhouse. "The timing, however, is critical."

If carried out when the ground is too wet, aeration can punch holes that smear and retain water, he explained. This 'vase' effect prevents water spreading through the rootzone. "Aerating in too dry a condition can reduce the degree of soil shatter necessary to penetrate and aerate the deeper rootzone," he added.

Greenkeepers can work to half depth with half-inch tines, six to eight inches deep, to keep the surface open and promote growth on heavily used greens. "Minimal heave of just five inches from the vertical is enough to encourage fissuring and allow any moisture down to the roots," Darting said.

The aim is to link fissures created by deep tine aeration with smaller and shallower fissures created by smaller 8mm tines. "As a rule, it is never likely to be too dry to use microtines – hard compacted soils typically prevent shallow aeration anyway," said Darting.

Any moisture loss after aeration will be made up when water is either applied through irrigation or naturally, while good aeration speeds absorption and minimises evaporation losses.

Greenkeepers can swap a four-tine head for an aluminium block carrying six or eight 6mm tines – doubling the tine count on the Verti-Drain and creating many small holes to maximise irrigation and allow water into the turf.

"Working more slowly generally gives better results," said Darting, "but if busy times require high speed, choosing the right ground conditions is crucial."

The process of Verti-Draining can reduce fertiliser requirements and cut costs, too, Charterhouse maintained. "Where sufficient labour and tractor power is available, regular use will help introduce air and water into turf roots and reduce the need for external stimulants," Darting concluded.

Tony Gadd meanwhile is in clover with his '7521'. "It's a great piece of kit and easy to use," he enthused. "We were soon up and running after the installation by New Forest Farm Machinery. They provide all the technical support we need, which actually is slim as the machine is robust and efficient."

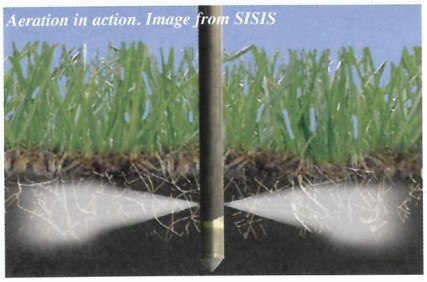
The weather has proved relatively kind to Ian Bailey, head greenkeeper at Stockwood Park Golf Club, near Luton. "We've received plenty of rain but so far we've only lost three days of play in winter 2013/14," he confirmed.

Staying open as many days of the year as it can is particularly important for the 18-hole parkland pay and play course, which, once managed by the local authority's parks' department, is now run for the council by Active Luton Leisure Trust.

Ian and his five-strong team must prepare the course for some 40,000 rounds a year – "more than your average private members' club," he said – and keeping compaction-free greens is vital in helping deliver a memorable experience for golfers.

Under his rolling replacement programme for machinery, Ian searched out a reliable, convenient aerator to take the club forward and continue the process of course improvements made during his 11 years in post.

"We're built on clay here so aerating is certainly an important part of


Aeration in action. Image from SISIS

maintaining the course to a standard that minimises the days we lose because of the weather, he explained. "I liked the sound of the SISIS Aer-aid, asked for local dealer RT Machinery to give me a demo and we decided to buy it."

Hauled by a John Deere 3720 compact tractor, the aerator makes short work of greens, Ian reported. "The machine offers different options on tine depth and spacings – I use a 75mm spacing to 75mm squares when we want air injection into the greens, then 75 by 50mm when we switch off the compressed air and revert to hollow timing."

Having the compressor built in is a key benefit for Ian as is the convenience of changing tines. "Maintenance is simple too – just a few grease points and that's it," he said.

When injecting compressed air into the greens, Ian takes the tines down to three or four inches so that the substrate is loosened around the rootzone. "By introducing cracks and fissures, roots are given more space to penetrate deeper down," he said, "while a rear roller fitted to the aerator ensures we leave a very smooth surface afterwards."

While he plans to leave his fairways alone for now – "apart from some slitting in late autumn, early winter", Ian intends to extend the Aer-aid's application to tees as well, such has been its success to date. "Machines like this are going to play a bigger role in course maintenance," he concluded.

Last year's greens' work can reap dividends as we emerge from such an exceptionally wet winter. Organic matter absorbs moisture, acting like a sponge to slow percolation rates dramatically, but sand injecting the surface will have given greens a fighting chance to remain playable.

"Greens that were Graden sand injected last year are holding up extremely well," reported John Fitzpatrick of R&K Kensett, which supplies a range of machinery and equipment to improve greens' drainage and sward.

Working closely with the STRI since 2009, Kensett is exploring ways that its Graden Sand Injection machine can rejuvenate greens. Research shows that the Graden Contour Sand & Seed Injection machine removes and replaces up to 10 percent of the surface, while simultaneously removing up to 15 percent organic matter in one pass. "The process increases percolation to the existing rootzone and drainage below the top 0-20mm level," Fitzpatrick said. "Few machines can achieve the same levels of aeration and replace the surface at the same time. The contoured head allows the machine to reach every part of the green without risking scalping on undulations."

To further improve the health and playability of the greens, a combination of processes can be used starting by putting down a layer of moist sand as a top-dressing, then solid tining. This part of the process can be used to access the lower levels of the greens.

The TB220 Turf Brush follows up by brushing the sand into the aeration holes and filling them to the top, which is vital, Fitzpatrick argued. The greens are then irrigated and following this, the Graden Contour Sand & Seed Injection machine is used at a depth of between 15 and 25mm, using some 40 tonnes of kiln-dried sand per hectare.

"Due to the persistently wet weather, the amount of organic matter in greens will increase dramatically this year," said Fitzpatrick.

"Continued use of the Graden Sand Injection machine will keep reducing organic matter to sustainable levels of control which will also result in less disease, firmer, faster greens and the successful establishment of fine grass species."

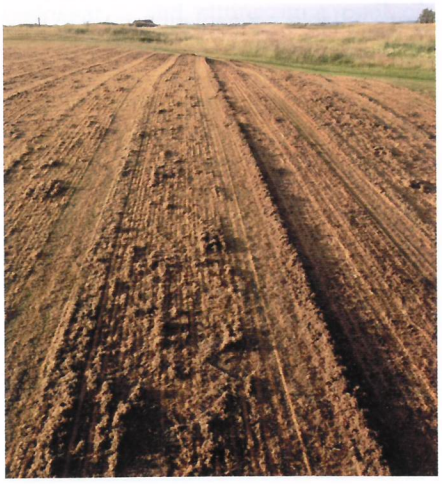
The more often the process is carried out "the easier it becomes" added Fitzpatrick, who recommends that the Graden process is used at least once or twice a year. "The Graden Sand Injection also has the versatility to be used as a Verticut machine at any spacings the operator requires when the sand injection unit is not used. This can be used on tees, approaches or any wear areas."

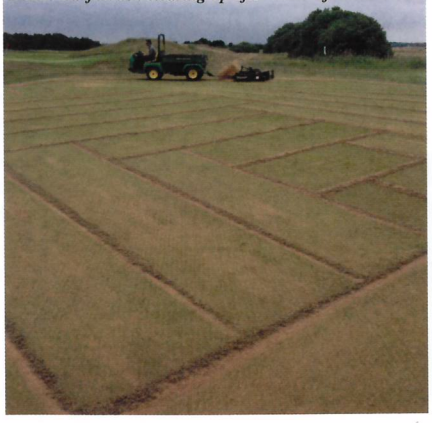
Simon Cottrell, course manager at Market Drayton, had drainage put in on the greens, then brought in R&K Kensett to undertake the sand and seed injection process annually for three years. The club then bought its own Graden machine and Simon confirmed that on most greens now, bents have increased from 15 to 50 percent.

"The great benefit of using the Graden Sand Injection process is that the results can be measured accurately by testing organic matter before and after works and the greens are instantly back in play," Fitzpatrick explained.

At Purley Downs, Surrey, results have also been dramatic, where, working with its consultant agronomist, R&K Kensett is treating greens twice a year. One of its members wrote to the club to say that the greens were the best that he could remember in his 45 years of playing there.

"Even with the wet weather we've been suffering, the club has avoided having to resort to temporary greens," Fitzpatrick confirmed. GCM





Left: The thatch / organic matter the Graden Sand Injection removed at Purley Downs Golf Club. Here, the TB220 Turf Brush clearing up after sand injection works