





WHY ARE YOU DIGGING UP OUR GREENS AGAIN?

Aeration is one of the greenkeeper's most powerful means of improving turf quality – but it makes the golfer's heart sink. Steve Carroll finds out the method behind the apparent madness

LET'S be honest, most of us would have to look the word up. For golfers, the first time many of us become acquainted with the practice of aeration is when we play a competition and find a green covered in holes or, perhaps, draped in sand.



How many of us, instead of moping into the bar to complain about the bobble on that putt that was definitely going in, have stopped to ask our greenkeeper why they do the work and what its purpose is?

Never fear. With the help of Ringway course manager Richie Stephens, we've asked all the hard questions for you.

Why do you need to aerate?

The main thing you are trying to do is create air down to the roots. Because the soil is a lot more tightly packed (in greens), roots and moisture find it difficult to move through. If you can create as much air space as possible then roots, water, nutrients – everything can congregate in those areas and lead you to better strength of grass.

Why would you aerate greens and how often?

We like to do something every month to the greens. Whether it's from the smallest hole right up to something that's a bit more visible.

It's mainly to keep the airflow going into the base of the greens and into the roots. It's not too deep or invasive in the summer. We do one main, what we call, renovation in August and we do a second in the autumn. It's normally any time in October. That's where we are quite aggressive and put a lot of sand down behind it. That's mainly to help with drainage and infiltration.

It's vitally important you aerate. If you seal the surface, you end up reducing the chances of your grass to grow. We need lots of grass on there to keep the playing surfaces nice and tight and rolling smoothly.

Does it happen elsewhere on the course?

We try to do one wall-to-wall aeration every two years. That's with a slitter – a deep tine slitter goes in anywhere

from seven to 12 inches. We try to do it every year but at least every two years.

We also use a Verti Drain on the fairways, tees, approaches and some carries. We try and aerate as much of the land as possible.

The only other aeration, except for greens, is that we would hollow tine tees and approaches occasionally to try and reduce thatch areas and help moisture through the top.

Has the timing of aeration changed?

At our course, we used to do a lot of our renovations traditionally in April.

But you're just getting into the start of the season and the temperatures, certainly over the last few years, have not been good enough to grow grass – not new grass and especially the types of grass we are trying to encourage, which are the finer bents.

We've moved away from that idea of going in spring and waiting two months for the grass to grow.

What we now do is lay off a little bit in spring. A lot of us have moved to August where we can almost get a three-week turnaround in grass growth.

For the member, the less time they are playing on secondary surfaces the better.

Is another reason you do it in August to keep the greens playable all year round?

Yes. We try and operate our greens all the time they are available. The only time we would close them is when we're working on them or when we have a prolonged period of frost. If we can't move the holes on a five-day period we will move to our temporary greens.

It simply wouldn't be possible without aeration. We've got better at doing it as well. We know where to target and when. It's absolutely vital we aerate. There's no getting away from it. You've just got to do it.

Technology has changed a lot. How has the practice evolved in the time you've been doing it?

When I started it was mainly slitting, hollow tining and solid tining. The Verti Drains came into their own just as I started greenkeeping. The availability and variability has all increased now. There are things like star slitters and slight changes to those machines.

The Air2G2 has come in and sub surface aeration has been fantastic. It hardly makes a mark on the top surface but, in the summer months, can provide a lot of air, and a lot of cooling air, to the roots.

That really helps stimulate growth and keeps things going during those really hot periods as well as allowing drainage in the wet periods.

The other machines that have got better over the years are things like the scarifiers. They reduce thatch but also help

WHAT IS THATCH?

Sitting between the green you stand on and the soil, thatch is a layer of dead vegetation that is caused by dead leaf material. Grass naturally generates this material and we also contribute to this by leaving clippings on the surface. A little can be quite beneficial – providing a protection against the constant traffic a green has to withstand.

But when there is too much, it can cause serious surface problems. The green might not roll evenly and it can be vulnerable to more disease, pest infestation and water-logging as it is a natural sponge and will retain water very efficiently.

So how it is combated? Aeration, particularly hollow tining, scarification and verticutting – along with general good maintenance - can have an impact.



with infiltration as well. The quicker you can get that water off the top, the drier the surface, the better the grass, and the longer in the year you can play on that surface.

It's an inconvenience for golfers but you say it's vital for the health of the greens?

One of the key combinations is the top dressing side of it. We're trying all the time to get better at getting it into the ground and getting the surface playable as quickly as possible. But golfers do have to play their part, especially at a members' club where they have got an investment in that golf course being open for as long as possible for as many years to come as possible. They have got to back their greens staff into doing as much aeration and as much top dressing and as much drainage as they can put into it – especially at our type of site, which is clay.

What does the sand do in top dressing? Is it just filling holes?

The practice has changed over the years. We used to use a sand/soil mix so what we were putting back in would match as closely as possible to the surface that we were taking out. A lot of clubs, mainly though expense,

have moved to pure sand. The sand you pick tries to be identical to the top mix you've got and the reason for that is so that the water moves easily through the surface as well. If it starts to move in spots you get spotted growth and a lot of speckled grasses. You are reducing the quality of your playing surface quite a lot if that happens.

It's important that the actual sand you pick is right as well. I've seen when it's been cheap sand, or the wrong sand, and you end up with a sealing of the surface.

That does the opposite - it doesn't help drainage, it discourages it.

This sounds very technical. We just see you chucking sand down and making holes?

We've got a couple of good research institutes in this country that have brought through new technologies. It's not just 'we'll try this and see how it works'.

The STRI (Sports Turf Research Institute) are trialing all kinds of aeration and different ways of top dressing - even the way the sand is introduced into the top layer. There's a lot of technology and science and research that's going into these things.

We do try and keep on top of it and keep going forward.

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TILL confused? Stuart Green, BIGGA's head of member learning, is on hand to help you understand all the jargon surrounding aeration...



The greenkeepers' dictionary definition of aeration is: to replace soil air with atmospheric air.

To understand why aeration is critical to healthy turf, it is essential that the golfer understands that the roots of grass don't grow in soil. They actually grow in the air spaces between the soil particles.

On putting greens, the aim is to move water away from the surface as quickly as possible. On soil greens, that can be quite difficult but the requirement is to keep the surface in contact with the sub surface.

That means aerating at all different depths. The more that can be done, the more effectively water can be moved away from the surface.

Keeping the surface dry has the benefits of better quality grass, reduction in disease and disorders, such as moss, and increased all year round playability.

What are the benefits of aeration?

- Compaction relief and improved surface performance
- Better penetration of water and air
- Fertiliser/nutrients delivered into the root zone
- Improves soil structure
- Improves rooting capacity
- Longer use of the surface – increased playability all year round
- Releases toxic gases from the soil
- Increases shoot growth

What is solid tining?

A solid tine is a piece of cylindrical metal that punches down into the soil and makes a hole. Depending on what machines these are attached to – such as a Verti Drain machine – it can be adjusted to produce 'heave'.

So instead of going straight in and out again – which will provide minimum surface disruption – it can be adjusted so it lifts the soil, fractures it and opens the ground up underneath as it comes out.

They can be micro tines, which are thin needle-type tines (8mm) that produce lots of holes over the area, to 24mm tines that can make sizeable holes and will generally go a lot deeper.

What is hollow tining?

A hollow tine is a round tube that penetrates into the ground, collects a core and when the tube penetrates the ground again, the core is pushed out through a hole.



“The A2G2 machine will punch a spike into the ground and a compressor will blast a massive amount of air into it. The air pressure causes the soil to lift and fracture, breaking up compaction”



This allows greenkeepers to remove material, such as poor quality soil and thatch and allows water and air into the root zone.

When a core comes out, it needs to be replaced with something.

So when thatch is removed, top dressing is usually applied behind it to fill up the holes.

Think of it as a soil exchange programme. Thatch and soil is removed and quality sand is added to aid water movement through the surface and drainage. That makes it a lot easier for the plant to grow.

What is slit, or knife, tining?

On a drum, a series of blades rotate through the soil as the machine moves forward.

They slice through the surface and create fissures and cracks in the ground.

They allow for lateral water movement through the soil and aid root development.

What is air-injection?

A device, such as the Air2G2 machine, will punch a spike into the ground and a compressor will blast a massive amount of air into it.

The air pressure causes the soil to lift and fracture, thus breaking up compaction by fracturing the soil and improving drainage and root growth.

What is star tining?

Similar to slit/knife tining, a Sarel Roller – a machine with a number of spikes – runs over the surface.

There is minimal disruption to that surface and it allows it to breathe as well as take in water.

Particularly effective during the summer, a star blade is around an inch long at most.

What is an Ecosolve?

Also known as a 'drill n fill', the machine sits on the surface and drops down a series of drills as far as two feet into the ground.

It removes material like a drill, which is then back filled with sand or any material, which helps to aid drainage. ❀

TOP DRESSING...

Top dressing sees a layer of sand, or a mixture of sand and other materials, spread across the green. There are many different ways of applying it and, depending on the course, greens teams could use it little and often or heavy and maybe only once or twice a year.

The aim is to dilute the thatch that sits between the surface and the soil, improve the quality of the soil and drainage and maintain a smooth and true putting surface. All of this promotes a better grass plant and means a better putting surface. We talk about top dressing alongside aeration because they can take place at the same time. If the greens have been hollow tined then whatever is in the top dress mix can be integrated into the soil, through the holes in the surface.