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The continuous

Although golf course turf will benefit greatly from any traffic management measures taken during the wetter months of the year, regular aeration will still be needed to keep the surface and subsoil in good condition.

Those who aerate simply because "we always do it as this time of the year", risk incurring the wrath of the golfers who increasingly are demanding a good reason for disruption to play.

To maintain both good relations and playing conditions, aeration should be carried out for two principal reasons. First, to prevent a problem occurring in the first place, otherwise known as preventive maintenance. And second, to treat (or cure) turf compaction which, for one reason or another, has built up over time or simply cannot be avoided.

For obvious reasons, the more disruptive treatments should not be undertaken in the middle of the summer, if at all possible. Appropriately, such operations



tend to be the "cures" rather than the preventive measures, and are best left to the spring or autumn months when the soil is better able to respond to the work being carried out.

Fortunately, the less disruptive operations such as spiking or slitting are those which are able to benefit the turf during the main playing season, helping prevent a problem occurring in the first place.

"When thinking about aeration, greenkeepers must focus on two important areas," points out Neil



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battle to maintain fine turf



Solid tining has a similar aerating effect to slitting but the round hole holds its shape better in dry weather

Squires, agronomist with the Sports Turf Research Institute, Bingley." One is to keep the soil profile as open as possible to encourage the downward movement of air, water and nutrients to the root zone. The other is to prevent the top surface becoming

too hard or too soft, as either condition can lead rapidly to soil compaction, poor drainage, turf wear or root growth problems."

A wide range of aeration techniques and tools are now available to help the turf professional achieve both these objectives with

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minimal disruption to those playing golf.

Although slitting has probably the least effect on compaction, the action does open up the surface, allowing air and moisture to get into the turf and down to the roots with very little disturbance. Particular parts of the course which will benefit are golf greens and tees, the choice of slitter coming down to either a triangular or a knife-type blade, the first-mentioned producing a greater opening at the surface.

Greenkeepers should, however, avoid over-aeration which, through the repeated treading of

tyres and severing of root systems, can create more problems than the treatment actually prevents. Care must be taken also in drying weather to avoid the slit opening up, demanding urgent remedial treatment on the finer turf areas.

If in any doubt about the consequences of blade or knife slitting, use a solid tine instead. This has a very similar aerating effect and is considered by many more appropriate for treatment of summer golf greens. The reason is that a circular hole has far greater strength than an elongated slit and will hold its shape and size



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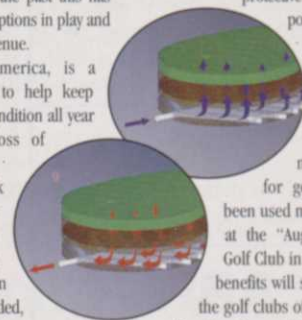
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better if the ground does dry out.

Hollow coring is probably the cause of more complaints from golfers than any other course maintenance work. It is important, therefore, that the non-professional is kept informed of why it is being carried out at a particular time of the year.

The treatment is normally combined with top dressing, the hollow coring action removing poor soil to be replaced with a fresh, clean, friable dressing. Apart from removing compacted soil, hollow coring helps combat thatch, improving drainage and root growth by allowing the surface layers to "breathe". Hollow coring followed by top dressing and brushing or matting-in is best carried out in the spring or early autumn when the grass is growing, helping the dressing work its way into the surface.

Choice of hollow-coring implement lies between the trailed revolving drum and the powered punch-action corer. While the first-mentioned is less complicated and less expensive to buy, the punch-action machine does penetrate the soil cleanly with reduced surface disturbance. Those who plan to hollow core once or twice a year could consider hiring in a high output, purpose-built machine to do the job. A core collector will also make light work of picking up and removing the cores littering the turf, restoring the surface to play with minimal delay.

Of all the specialist aeration machines introduced in recent years, those which mimic the original hand-forking technique



Hollow coring - an essential job which, nonetheless, prompts considerable criticism from golfers

on a golf green are regarded extremely highly by Neil Squires. "The Verti-Drain is perhaps the best known although there are others which follow similar working principals," he commented. "The action of the tines entering the ground then kicking before removal undoubtedly is of great

help in treating sub-surface compaction."

Mr Squires stressed that soil conditions are most important if full benefit is to be achieved. The surface should allow easy tine entry while the sub-soil must be sufficiently dry to crack and fissure. This makes the technique

ideally suited to late summer or early autumn on medium to heavy land while lighter and sandy soils can often be treated successfully through the winter.

Other specialist machines which work well on drier soils and cause minimal surface disturbance include those with vibrating tines or blades and those which inject water under pressure to depth, displacing soil to open up cracks and fissures.

Although pointing out that the use of water can be helpful also in treating localised dry spots, Mr Squires expressed some concern about the soil displaced by the high pressure jet. "It has to go somewhere, either downwards or sideways and this, in time, could lead to deeper-seated compaction, requiring supplementary treatments," he commented.

For courses suffering from deep, widespread compaction, the traditional answer has been disruptive soil-loosening action by subsoiler or major earthworks to eliminate the cause, with new drainage systems installed to help disperse excessive surface water. However, surface compaction, if left untreated, will soon spread and hinder the downward movement of water to even the most modern of drainage schemes.

On fairways, slit or vibrating aerators and verti-drain type machines will keep both the top and sub-surface open to allow the unrestricted passage of water, air and nutrients. For more localised, deep-seated problems, compressed air is increasingly proving a sound solution to shattering compaction at depths down to 600mm.



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Able to inject air under pressure via one or more long hollow probes, such machines are suitable for use on all parts of the course and are now available increasingly within hire fleets. Because such implements can cause considerable surface heave, Mr Squires advises their use on greens in late autumn, giving the turf plenty of time to recover before the main playing season.

"The problem today is that the main playing season has become far harder to define," concluded Mr Squires. "Golf is no longer a fine weather sport and more and more players and machines are treading the turf, giving it less time to recover and making it more susceptible to compaction.

"The answer which will have to be accepted both by golfers and maintenance staff is more aeration treatments throughout the year. The weapons are available to fight the battle against com-



Collecting hollow cores efficiently will help minimise course disruption and reduce pressure on greenstaff

paction but, due to the growing popularity of golf and the vagaries of the weather, it is a battle which I can never envisage being won."

● Many thanks to Neil Squires of the STRI for assistance in the preparation of this article. The STRI is based at Bingley, West Yorkshire BD16 1AU. Telephone: 01274 565131.

Richard Campey

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