

Ten on test by the people best qualified to judge – the greenkeepers

# REAL WORLD TEST AERATORS GREENKEEPER INTERNATIONAL

No greenkeeping machine is as varied as the aerator, perhaps due to the diversity of requirement. While the definition of aerator must be “a means of aerating the soil” there are also important drainage requirements. Although the fundamental reason for aerating is to improve root growth and turf health there are a number of reasons why soil needs aerating and many ways of achieving it. Problems and non-permeable layers can occur at any depth from the surface down, one reason why differing machines suit specific needs.

The following examples look at a number of machines and relate what the course management is aiming to achieve with it. Greenkeepers were asked how reliable and effective the machines have been, and often about tine life and running cost. These costs can vary enormously and while operating conditions have the most profound bearing on wear and tear the variations are such that there must be other factors involved such as setting, usage and metal hardness. The units considered vary from self-propelled and tractor mounted mechanical tining implements to water and pneumatic injection systems. There are also screw drill systems available.

## Sisis Technicore at Salisbury & South Wilts Golf Club

Course Manager Kerran Daly reckoned that the Technicore is one of fastest and most versatile machines on the market. It is a tractor mounted, pto driven, machine with a 4ft working width and a range of tines and adapters to enable it to core or spike at various width centres. Salisbury normally operate it behind a Kubota 33hp compact. The machine is now in its second

year and during that time it has not suffered any breakdowns or other significant problem. Changing tines is easy, solid tines are held with a pin and clip in a holder which is held by a screwed set stud. The club has several sets of holders which enables Nigel to change tines quickly and easily using a pneumatic wrench. The lubrication requirement of a few pumps of the grease gun every four hours for the main crank bearings is not considered onerous as the nipples are easily accessible. Bearings on the arms have an eight hour service requirement.

A set of hollow tines has been lasting for about 18 holes, wearing down from 5ins to 2.5ins during that operation and this was accepted as a fact of life without any comment. Mounting the machine on the tractor is extremely quick and simple with rear legs held with spring loaded catches to allow easy retraction or extension. Setting the working depth which is controlled by a single full width front roller is best with two persons, one each side working together as the rigidity of the unit prevents the two screw adjusters being more than a turn or two out of alignment, but this may be an advantage

as it prevents uneven working.

## Greencare Coremaster 12 at Dudsbury GC in Dorset

There is a policy to elevate five year old Dudsbury to one of the best courses in the south of England, thus a fairly intensive programme of work is being undertaken.

Pete Lovell, course manager at Dudsbury, explained that he first hired the machine last year and was impressed by its performance so decided to purchase one. The club carries solid, hollow and quadratines. One of the features which Pete particularly likes is the fact that his Greencare 12 has automatic lubrication as this precludes the need to carry a grease gun or stop to grease round. Oil use is remarkably low, the level in the reservoir is visible so there is little danger of running out of lubricant. No problems or broken pipes have been experienced with the system. Tine wear is “acceptable”, but in any case the cost of about £55 per set of 24 is considered to be “peanuts”. In fact the club has yet to wear out any of its solid tines. Where Dudsbury has found wear is on the metal loops which retain the tine return springs, and it was suggested that

some modification or an insert would be an advantage.

Dudsbury's Coremaster 12 was purchased through Romsey Garden Machinery, and is available for hire to other clubs. The club also hires out its Toro Hydroject 3000.



## The Toro HydroJect 3000 at Highpost GC near Salisbury

Lauchlan Millar at Highpost GC hired the Hydroject from Dudsbury. He has past experience with the machine which is unique in its use of high pressure water jets. His father is also a committed user, thus Lauchlan knew what he wanted and why he wanted to use this form of aerator.

Highpost is on chalkland, but the greens have built up a peaty layer and the turf was not rooting. There were also drainage problems on parts of the greens and furthermore shallow rooting was allowing the slitter to lift the turf. The club has a conventional aerator, a Ryan GA30, however this was not effective in getting through and into the chalk below to promote drainage, so Lauchlan decided to hire the Hydroject, which is currently too expensive to justify on the club's capital budget.

One common comment made to Lauchlan because the machine makes little or no marking or mess on the surface is that it isn't doing a “proper job”. Lauchlan carries a length of welding rod to insert into the holes which are just visible, so that he can show the sceptics the depth to which the jet is penetrating.

The machine is powered by a 24hp Onan twin cylinder engine which uses about a gallon of petrol per green, but if this seems excessive Lauchlan put it in per-



spective by saying that it is probably less than the cost of tines. The water demand is stated by the maker as eight gallons a minute at 50 psi, which should be within the capacity of most irrigation systems. The machine trails a high pressure hose from the water supply, and at Highpost there are hydrants convenient to each green.

Highpost proposes to hire the machine again in July and September.

**Weidenmann Terra-spike at Western Gailes GC**

Western Gailes in Ayrshire is a links course which expects to be open all year round, thus it needs a versatile aerator which is able to undertake deep as well as shallow tining. Stewart Barr, course manager, said that the Terra-spike deep aerator provided him with the means of enhancing drainage as well as undertaking

his normal aeration and compaction programme. His is the 1.35m width machine which the course has now had for a year, and his comment was that it teamed well with their compact tractor.

Last winter's weather plus increased pressure of golfers strained the greens' ability to



recover and required additional aeration work to relieve compaction but more particularly to promote drainage during periods of intensive rainfall. Stewart illustrated its deep aeration ability when it allowed him to dry out a fairway after "the heavens opened", just before an important match. "It was", he commented, "an instant remedy to the two ponds which had appeared on 17th." Normally the machine is used mainly on greens, tees and walkways. Last winter's weather was open but wet, and if not typical at least not uncommon for Ayrshire.

There have been no mechanical problems with the machine, Stewart described it as simple and robust, tines are lasting "Okay".

**Robin Dagger at Downes Crediton GC**

Crediton has hired a Dagger "for



years" but only bought its own (second hand) machine last year. The Fuji Robin Dagger soil ameliorator, to give the full name, is a unique machine with a single tine, this is driven into the soil by vibration from the two stroke engine when a charge of compressed air is released to lift and shatter the soil from the tip of the tine. The machine is self con-

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tained and has two wheels to enable the operator to move it from site to site.

Head Greenkeeper, Tony Blackburn, said that the Dagger was able to penetrate well into their stony brash and clay. Drainage is an important requirement at Crediton as much of the course is relatively low lying and has a stream running through it.

Trials with a conventional deep tine aerator had resulted in the machine failing to penetrate and ripping the turf. Occasionally the Dagger meets a stone which it cannot divert or shatter, and then it is a simple matter to re-site and try again. The machine is driven down to the full 20 in. depth each time and the aim is to aerate at 2 yard intervals. At this spacing it takes between three quarters and an hour on each green.

The Dagger is driven by a two stroke motor, and uses about a litre of petrol mix per green. Tony

has no criticism of noise level, parts back-up seems satisfactory for the strictly limited number of times that parts have been needed – a pipe and drill top breakage have been the only problems, and these occurred previously while the machine was on hire. Suppliers were P J Flegg Ltd of Ottery St Mary.

**Ransomes Ryan GA30 at Filton GC**

Filton's machine is relatively new to the course, replacing a machine of another make which was obsolescent. The GA30, possibly the best known of all core aerators, is a self-propelled ride-on machine with a 30 in. working width. It is powered by a Kohler Magnum twin cylinder petrol engine of 18 hp.

Kevin Green, Course Manager at Filton, said that they selected the GA30 for its speed and the fact that they were fully commit-

ted to a Cushman system with no suitable (compact) tractors at the club. In simple terms he felt it suited the course. Other important reasons for the purchase were to give flexibility.

The machine requires a minimum of servicing as all bearings

are sealed, thus no grease can be leaked onto greens. The most important point Kevin considered was to ensure that all tines are clamped tightly and that the steel turf guard fingers are not bent. Dealer support is excellent, but there is no service history yet to report. Kevin indicated regret that no diesel engine option was available, however fuel consumption is only about six gallons daily. The noise and vibration from operation is noticeable to the operator on the seat, and Filton insist that all operators wear ear defenders, however vibration is not considered a major problem as operation is for such a short period.

Operators have found the controls are very easy to use, and the machine is very easy to set up, in fact Kevin said it is virtually fool-proof. Lost or broken tines are easy to spot by looking back at the hole pattern.



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**Verti-Drain at Welcombe Hotel and Golf Course near Stratford on Avon**

Welcombe has very heavy clay, therefore, says Head Greenkeeper, Malcolm Grout, they need a very heavy duty deep aerator which could cope with the work. As a result the course bought a large - 2.5m width - Verti-drain in 1991 which they use behind a MF375 on flotation tyres. While fully justified on the 18 hole course the outfit has also

been hired out occasionally.

Malcolm admitted that because of its size it would frighten many greenkeepers however he has no qualms although he does select his moments to work the greens. Virtually no lift is given to the tines and a mower is used as a roller to follow the operation.

Half inch diameter tines last for about 36 holes, while the larger ones "go on for ever," Malcolm said, "well perhaps a season, remember this includes acres of

fairway." Replacement is straight forward, a two spanner job, the set screw having a lock nut. Tine losses are minimal, while the occasional breakage is inevitable. Servicing consists of greasing round once a week, fairly sparingly so that no grease drops off, an occasional adjustment of the slip clutch and a seasonal oil change. The gearbox uses about a gallon of heavy (140 SAE) gear oil. Due to the weight of the machine and the fact that there

are no rear jacks built in attaching it to the tractor can be difficult.

Overall Welcombe is extremely pleased with the operation of its Verti-Drain. "It has been the saviour of our fairways," Malcolm said, "which have no irrigation, and as a result can dry out horrendously."

**Multi-Cores with American Golf (UK) Ltd**

All five American Golf course in UK have 1.5m Multi-Cores, all are under a year old and all have proved to be extremely satisfactory. All the courses are relatively new with USGA spec greens, and Director of Maintenance Laurence Pithie is adamant that it is a myth that these do not need aerifying.

Made in Australia, the Multi-Core is, according to Laurence, simple and very robust with few parts to cause problems. The machines mount easily on the



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back of a 24hp compact tractor which provides ample power and stability.

The machines have been supplied with 16mm (5/8ins) solid and hollow tines as well as with quadratines. Operation is quick and the finish is neat and clean.

"Pencil" hollow tines are also available, with a 0.25ins diameter and these will be used for partial coring work particularly in shaded areas where extra aeration is deemed necessary. It is expected that the operation will be completed by simply drag-matting behind the corer to spread the cores.

Standard coring is practised once or twice a year on greens while solid tine and more often quadratine aeration of greens, tees and approaches is performed as deemed necessary. Slitters are also used.

Laurence estimated that tine wear and cost is comparable with

other similar machines, about 36 holes from a set of hollows and 54 from the solids, the latter also being used on tees and approaches – so covering a greater area than the coring tines, which are only used for the somewhat smaller than normal greens. Maintenance requirement is minimal with sealed bearings used throughout, thus the main requirement is to adjust the drive belts.

**The Terravent at Silvermere Golf Club in Surrey**

The Terravent is a new British designed and built system for spot treatment of compaction using relatively inexpensive equipment with compressed gas from cylinders. Silvermere Golf Club invested in the system last year and Head Greenkeeper Mark Logan says that it has been "brilliant". It has been used for problem areas on greens, tees and in



bunkers or wherever there has been a problem with drainage. A particular advantage is that it can also be used on banks where no other equipment can be used and around trees or shrubs. Mark has found the use of several forms of aeration essential as the Terravent is not a machine which you can go out one day and aerate the whole course.

The Terravent system consists of a probe which is "hammered" into the ground manually to the depth required using the built-in slide hammer before the burst of gas is released through holes at the bottom of the probe. A 30m. hose connects the gas cylinder to the pressure valve and probe. The gas used is nitrogen which is available from compressed gas suppliers countrywide, many golf clubs already having a gas supply contract for their bar. The standard recommended cylinder has a 30 litre/200 bar capacity which should cost about £45 per year to hire and £11.31 per refill. Mark says that he has found it essential to carry a spare cylinder as he has run out in the past when part way through the job. Terravent has now fitted a gauge to check the contents. The supplier suggests about eleven hundred holes per cylinder, but this is at the lowest pressure of 10 bar, at maximum shot pressure of 50 bar there are about 250 shots.

While the tool works extremely effectively, often really lifting the

soil, and Mark issued the warning that it can be so effective that with excessive pressure it is possible to produce bumps on the surface. He recommended wearing goggles and gloves, the latter to avoid blisters from using the slide hammer.

**C & P Soilcare – Terralift and Deep drill at Woodlands Manor GC – Sevenoaks**

Soilcare operates a hire service which is complete inclusive of operators. Woodlands Manor course is 28 years old and built on clay/flint cap over chalk, as a result it has many sites including greens and tees which need drastic action to break through the cap to the chalk for drainage. The club has used Soilcare's services on a number of occasions, using both its Terralift machines which employ compressed air released from deep ground probes and the Deep Drill with its multitude of large masonry type drills. The former has a maximum depth of 3 ft. while the drills go down about 10 in. thus both have differing uses. Head Greenkeeper, Don Attfield, has been extremely pleased with the service and the results.

The Deep Drill has been particularly effective used in conjunction with a wetting agent to solve surface water flow problems. Its minimum disruption to the surface is a vital advantage, Woodlands Manor sweep up the spoil and then top dress with a 70/30 mix. Cost has been fairly high, particularly as all broken drills are charged, and with the flints these have been numerous. Nor is the operation particularly fast, on average taking between an hour and an hour a half per green.

The Terralift likewise is a minimum surface disruption treatment and it has been particularly effective at breaking through the clay cap to the chalk below. It has been used on a limited number of greens and tees where in the past they have become very boggy over winter. Although Don would not admit 100% success he did say that it had allowed greens to be brought back into play much sooner than would otherwise be the case, and with a three foot reach it can guarantee to fissures right down into chalk.

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