A breath of fresh air

Effective aeration improves drainage, reduces turf compaction, thatch build up and boosts the health of golf course greens and fairways. Toby Clarke, Sales Manager for Dennis and SISIS. explains the basics of aeration, its advantages and which machinery you should look at

Q What is aeration?

Put simply, aeration is a mechanical operation that creates more air space within the soil. This increases oxygen levels allowing for better percolation of water and nutrients thus promoting a healthier plant.

Q When should I use different methods of aeration?

All greenkeepers will have or should have an aeration programme in place. These will differ from club to club depending on soil structure, budgets, staffing levels, amount of traffic, climate etc. An example of a greens programme is shown inset right.

Varying the depths at which you aerate is important to avoid 'panning' – which is when a compacted layer forms below where aeration has been carried out at the same depth for a number of years.

The top 100mm is the most important. Hollow tine aerating used for the removal of thatch and soil exchange purposes is generally undertaken from late summer through early autumn when recovery will be greater. However, using a small diameter hollow or solid tine to a depth of 50mm throughout the growing season will cause little disruption to play and will increase airflow and water/nutrient ingress during the drier months.

An example of a greens programme

- Spring/late summer and early autumn - deep tine to 350/400mm
- Hollow tine late summer and early autumn to 100mm
- March to October, solid tine every 3-4 weeks up to 100mm
- Slit tine when weather allows during autumn & winter months to 100mm-200mm

ABOVE: The Javelin Aer-Aid 1500 is a tractor mounted aerator that not only aerates with a vertical action, but also injects air into the root zone

Q What type of machines should I look at?

There are many different types of aerator currently available and all are viable - if budgets allow of course! (see box on right page.)

In these tougher economic times we have seen a noticeable upturn in clubs returning to our Multitiner tractor mounted aerator. The SISIS Multitiner is available in 1.2m and 1.8m widths and is a drum-type aerator, which is ideally suited to a range of applications. It has three drums with independent rotation and interchangeable tines (hollow/solid and chisel) with a maximum depth of 100mm. It's not only cost effective but also simple to use and maintain and is extremely reliable.

Pedestrian slitters such as our Autoslit are also proving popular when poor drainage becomes problematic and compaction issues prevent the use of tractor-mounted equipment. They can be used throughout the winter months with little or no disruption.

Q Why is aeration important and what are the benefits to the greenkeeper?

Low cut heights particularly on greens mean that regular aeration is vital. With cut heights as low as 3mm the plant needs a good well established root structure to supply the oxygen and nutrients needed to survive. Regular aeration will allow the plant to flourish. Obviously, a

golf course that is well aerated and has a proven aeration programme will be a delight to manage. Golfers should be appreciative and more will want to play. This will increase revenue within the club which is beneficial to all.

Q What are the advantages of mechanical aerating and air combined?

Using compressed air at relatively low pressures has two main benefits - the first being the fracturing of the soil causing many fissures within the soil structure. The second is a large increase in oxygen levels over conventional aerating. This has the obvious effect of allowing a better flow of water and nutrients throughout so a green with traditionally poor drainage will improve with immediate effect. Surface disruption is kept to a minimum as the action is gentle allowing play to proceed without delay.

One such machine which is proving very popular in the UK and also our export markets is our Javelin Aer-Aid 1500. This machine is a tractor-mounted aerator that not only aerates with a vertical action, but also injects air into the root zone at a fast working rate, creating thousands of fissures. The cam trigger mechanism ensures that the air is always expelled at the bottom of the tine penetration, enabling treatment to be targeted precisely and consistently.

The overall result is reduced compaction, healthier growth and a reduction in the need for fertilisers and pesticides. The 10mm diameter 'tipped' tines are spaced at 75mm (3ins) with depth of penetration infinitely variable to a maximum of 127mm (5ins). These air injection tines are specially designed to use the maximum air available from the compressor and produce clean, fresh air at a constant rate of 88 litres or 3cu ft. per minute. Surface disturbance is kept to the minimum after operation.

Q Why is minimal surface disruption important in selecting the right equipment?

Minimal surface disruption is vitally important when selecting the right equipment. Getting your greens, tees and fairways back into play ASAP should be one of the first considerations on any greenkeeper's mind. Timing is paramount as is choice and size of tine for example.

Hollow tining in late August will recover far quicker than hollow tining in late October. The golfers may complain more but they will have superior greens in the longer term. The simple rule is the larger the tine, the more disruption.

When aerating, ask yourself is the machine fitted with a light pressure roller? This will not only help maintain levels but you are doing two jobs in one pass.

Q What depth should I aerate to?

Varying the depth is important to avoid panning. Aeration is possible anywhere from 10mm to 400mm if conditions allow. For example, a large slitter, such as the SISIS Megaslit, used on a fairway would have a maximum depth of 300mm or when hollow tine aerating a green maximum depth would, in normal circumstances, be no more than 125mm.

Q In your opinion, what are the 4 most important topics/ aspects of aeration?

1. Maintaining or improving the circulation of oxygen within the soil structure.
2. Remove or controlling thatch build-up.
3. Relieve compaction.
4. Improve drainage.

Types of aerators

- Hollow/solid/chisel aerator, pedestrian or tractor mounted
- Slitters, pedestrian or tractor mounted
- Combination of air and solid tine aerator, tractor mounted
- Deep tining aerators, tractor mounted
- Linear action aerators, tractor mounted
- Water injection aerator pedestrian

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