Case Study: Environment

Improved Greens Drainage: Haggs Castle Golf Club

INTRODUCTION: Haggs Castle Golf Club is set in the magnificent mature parkland of Pollok Country Park, close to the world famous Burrell Collection. Formed in 1910 the course occupies land that originally belonged to Sir John Stirling Maxwell and his family. At 6,426 yards from the white tees, and 5,987 yards off the yellow tees, the course is playable for all and a challenge for the best. The tree-lined fairways provide a wonderful contrast to the nearby, bustling city-centre.

THE ISSUE

Every Greenkeeper's objective is to develop a healthy turf and soil profile on their golf course to provide the best possible playing surfaces at all times to members and visitors alike. Inevitably, the changing climatic conditions, constant golfing traffic and perhaps also the legacy of previous course maintenance practices will provide greenkeepers with some major challenges in maintaining surfaces at their best.

It is desirable to maintain a free draining soil profile across all key areas of the course; greens, tees, fairway landing zones etc. to encourage movement of water from the playing surfaces when required and to create the correct soil environment for chosen grass species to flourish.

Key to this is the management of available air spaces within the soil profile. Compacted soils with little air space will not allow roots to develop and grow to suitable depths to sustain a consistently healthy turf. Where the available air spaces fill with water roots, despite requiring this water, will stagnate and die back impacting on the turf quality.

Haggs Castle Golf Club in Lanarkshire, like many other parkland courses has an annual programme of aeration as a critical course maintenance practice to mitigate against the potential of:

- soil compaction
- smearing / sealing of playing surfaces
- thatch accumulation
- restriction of root growth
- flooding in times of heavy rain
- forced course closures

AT A GLANCE…

>> Key to a free draining green is management of the air spaces to allow water infiltration through the soil profile.

>>Haggs Castle GC worked with STRI to monitor infiltration rates at various points across the greens.

>>Infiltration rate data allows the club to monitor success and target future aeration; micro-tining and verti-draining greens maintenance work.

SCOTTISH GOLF

THE SOLUTION

Haggs Castle GC regularly receives agronomic advice from Richard Windows of Sports Turf Research Institute (STRI). Aeration practices are advised and include solid tining, hollow coring and slitting. This programme:

- Alleviates soil compaction
- Encourages strong and deep root development
- Increases permeability through the soil profile i.e. better drainage across all treated areas of the golf course
- Increases resistance of grass species to drought periods
- Creates the right environment to encourage establishment of the finer grasses

Infiltrometer

Year round aeration such as micro-tining during the playing season often goes un-noticed by golfers, yet provides substantial benefit to the health of the turf in combination with regular mowing, verticutting, rolling, turf ironing, and top dressing.

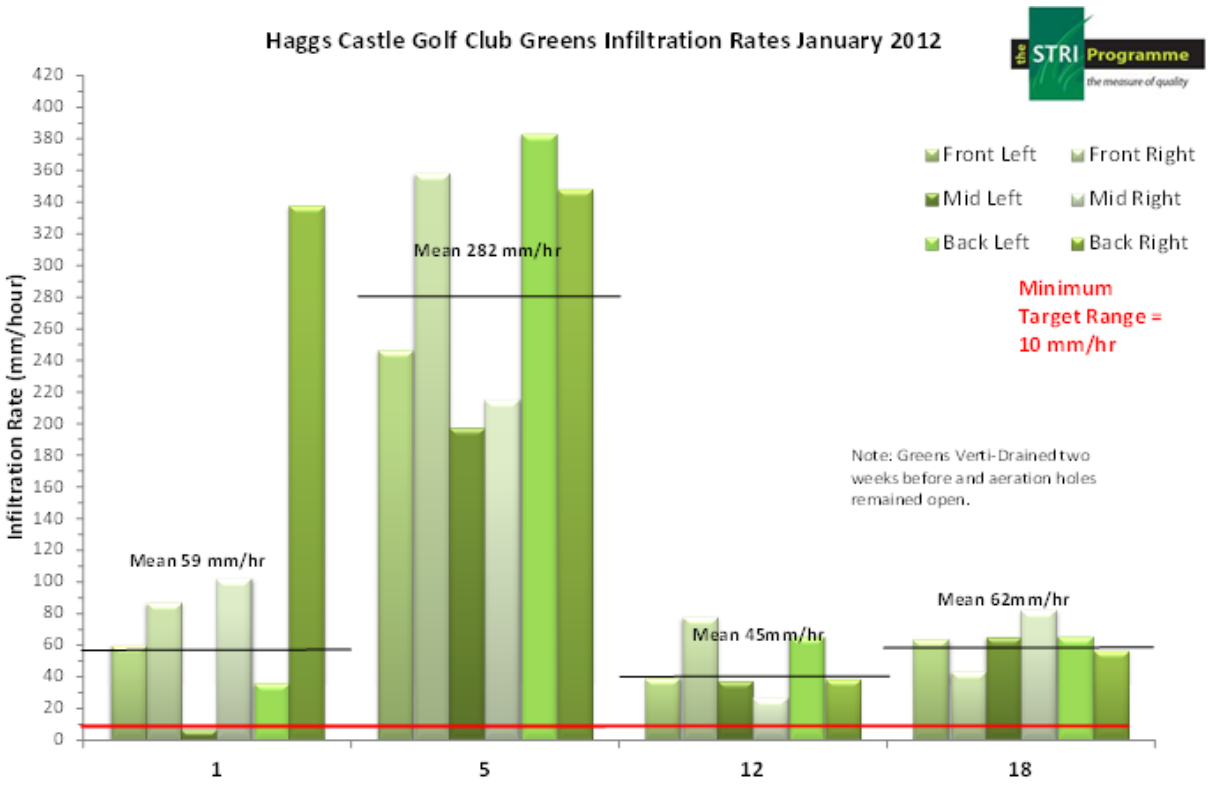
A more intense winter programme at Haggs Castle GC focuses on greens with particular issues that have been verti-drained with 1/2 inch tines and cored with 1/2 inch tines both at 2 inch centres.

OUTCOMES

Playability improvements were obvious to greenstaff and members following the winter programme. To back up and justify the aeration work, infiltration testing was carried out by Richard Windows to prove that the soil profile of various greens had improved and drainage was better.

In October 2011 baseline measurements were taken on the 18th green prior to and winter aeration. Six double ring infiltrometers were placed on each green and used in accordance with the standard method. Following a period of saturation, the rate of infiltration was measured in mm/hr. In November 2011 the mean infiltration rate of the 18th green was 5 mm/hr. The measurements were then repeated in January 2012 on the 1st, 5th, 12th and 18th greens.

The results were very impressive. The infiltration rate on the 18th increased to 62mm/hr and the mean infiltration rates on the other greens were well above the minimum target rate of 10mm/hr. The sand based 5th green was superb at 282 mm/hr.



Richard Windows commented "To get such high values, even on soil based greens (such as 12 and 18), is very good indeed. The open Verti-Drain holes will be contributing to the high values but this does show the value of this operation in combination with the low organic matter levels."

The low values to the mid left of the 1st green showed an interesting low infiltration rate which will be investigated further.

FIND OUT MORE

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If your club would like to promote its business success story or require support in this area, please contact your Club Development Officer or Environment Manager Carolyn Hedley c.hedley@scottishgolf.org

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