

# Winter Advisory Report on the Golf Course

STRI

Sports Facility Name: Ringway Golf Club

Report Date: 18<sup>th</sup> January 2012

Consultant: Emma Beggs



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Report Title	Winter Advisory Report on the Golf Course
Sports Facility Name	Ringway Golf Club
Date of Visit	9 <sup>th</sup> January 2012
Visit Objective	STRI were invited to carry out a winter assessment to give advice on the moss problem affecting the new greens and to measure infiltration rates on two putting surfaces.
Present	Lillian Syme – Green Committee Member Jim Grainger – Course Manager Kath Bentley – Turfgrass Agronomist, STRI Emma Beggs – Turfgrass Agronomist, STRI  Discussion was also held with Kevin Blackwell – Chairman of Green Committee

## Introduction

Over the past few years moss has become a problem on the three relatively new greens i.e. the 5<sup>th</sup>, 9<sup>th</sup> & 12<sup>th</sup>. I understand that these were rebuilt 11 – 13 years ago and construction was similar to the USGA Guidelines although a 50/50 rootzone was employed to ensure closer performance to the original soil based greens on the course.

In addition an opportunity was taken to measure infiltration rates on two greens. The 16<sup>th</sup> green was tested to represent a mid-performing soil based green whilst the 9<sup>th</sup> green was tested as one of the new constructions.

## Conditions Found

During the morning visit we looked at a number of greens including many of the original surfaces as well as the three newer reconstructed greens.

I was extremely impressed with turf quality on the original greens particularly for this time of year. Indeed these were amongst the best surfaces I have seen during the course of my work over the past year. Turf species composition was really excellent with a very high percentage of bent grasses well blended with annual meadow grass. All grasses present appeared to be very healthy and have coped extremely well with winter play. I am sure that during the growing season with appropriate maintenance inputs these greens provide very high quality putting surfaces.

The newer greens contain a greater amount of moss than is desirable. I understand that a significant amount of maintenance has already been carried out to try and reduce the level of moss present, however moss continues to invade these turf surfaces. Sward density was noticeably weaker and thinner across these three greens and reportedly grass growth is less vigorous during the growing

season compared to the original surfaces. Weak swards will give moss a much greater opportunity to establish.

In addition fusarium patch disease scarring was also present across these three greens whilst it was almost absent from the original soil based greens. With the disease activity confined to the relatively new greens this is a further indicator of weaker turf surfaces, these being more vulnerable to outbreaks of fusarium patch disease activity each autumn.

Having assessed the surfaces it is recommended that fertiliser inputs on these three greens are increased during the growing season to strengthen sward density, reduce the opportunity for moss establishment and strengthen the turf against autumn disease pressures.



Photograph 1 - Typical moss establishment noted on the newer greens

Conditions beneath the greens were examined as a part of the visit. Generally soil profile conditions are very good with strong rooting where examined and good uniformity through to depth following the use of consistent top dressing from year to year.

However, as photograph 2 below illustrates there is a layer of organic matter present beneath all of the greens including both the original and newer constructions. This layer of organic material is at a

depth of approximately 20 mm to 30 mm beneath the surface and sandwiched between good quality friable sandy soil accumulated through top dressing applications. Surface organic matter i.e. that which builds up in the 0 – 20 mm depth from the surface has been extremely well controlled through scarifying treatments carried out as part of the on-going maintenance programme. This scarification treatment is working very effectively at controlling any thatch accumulation in this immediate upper surface profile, but beneath this there is a thin layer of organic matter sitting at a set depth just beneath the depth of the scarifying reel.

Organic matter will hold water rather like a sponge during the wetter months of the year contributing to surface softness. In addition, organic material will provide ideal conditions in which fusarium patch disease spores will thrive thereby resulting in a greater level of fusarium patch disease activity than would otherwise be the case.

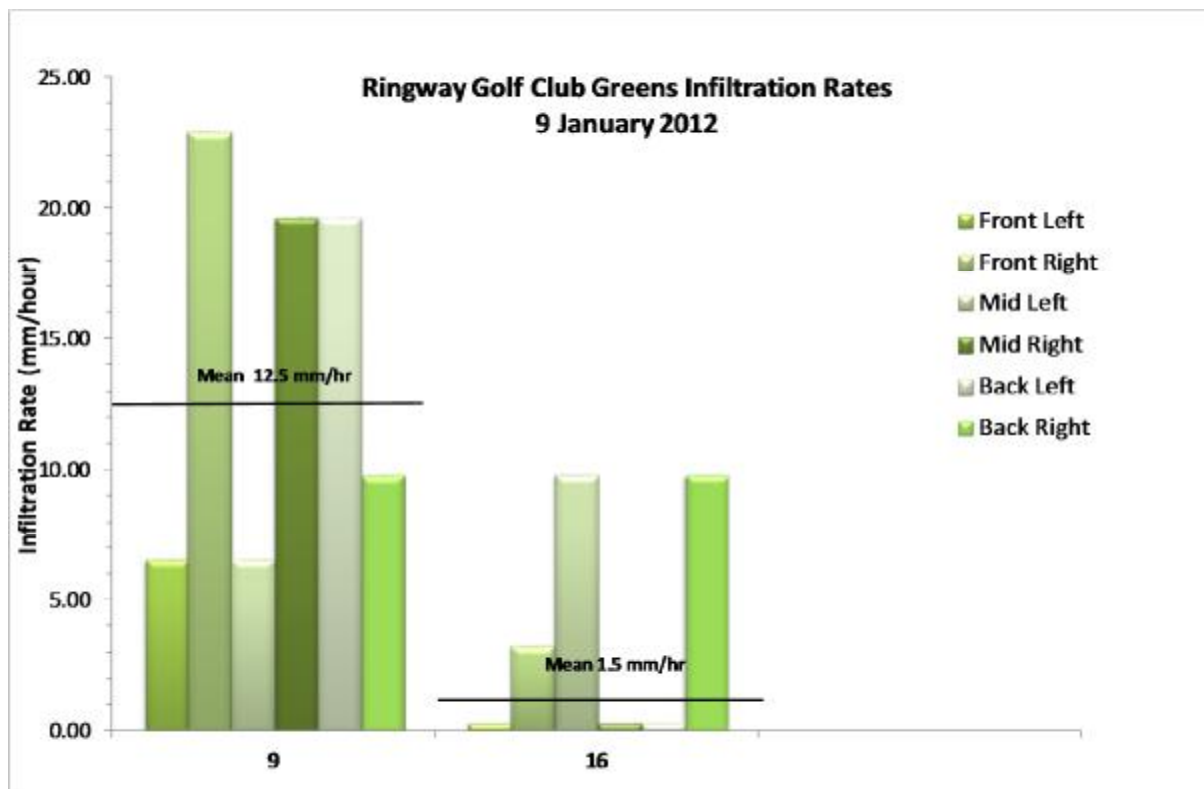
It is therefore recommended that steps be taken over the coming year to start to physically remove and break down this layer of organic material. Whilst it is a relatively thin layer and not causing excessive problems, I do feel that year round performance would be further enhanced if this material could be gradually broken down.



Photograph 2 – A typical soil profile found beneath greens showing a layer of thatch at a depth

## Determination of Water Infiltration Rate

During the visit we took the opportunity to test the water infiltration rates on both the 9<sup>th</sup> & 16<sup>th</sup> greens. This standard operating procedure is based upon a European standard under preparation by technical committee CEN/217 Surfaces for Sports Areas. Water is ponded within 2 concentric metal cylinders which have been hammered into the surface. The outer cylinder is used as a buffer area to prevent the lateral flow of water from the inner cylinder and the rate of water entry into the surface from the inner cylinder is measured. Six double ring infiltrometers were used on each green to ensure a suitable average infiltration rate was determined. The results collected for these two greens are shown in the graph below.



As the graph shows the average infiltration rate for the rebuilt rootzone based 9<sup>th</sup> green was 12.5 mm/hr and on the original soil based 16<sup>th</sup> green the infiltration rate was 1.5 mm/hr. This clearly indicates the better drainage rate of the new construction, being almost 10 times greater than the soil based green.

It was reassuring to hear that all the greens remain open for play year round and that there are no particular problems associated with drainage or surface softness during the wetter months.

## Recommendations

### Moss Control

Moss establishment can be as a result of a combination of many factors and it can be difficult to find the exact reasons for moss establishing in a particular area, however we hope that implementing the following combined approach will result in a significant reduction in moss over the next 12 months.

- Continue with monthly applications of iron year round to check moss establishment.
- Continue with monthly applications of a good quality seaweed product year round to promote healthy and vigorous turf without excessive growth.
- In late spring, once strong grass growth has picked up, treat these three greens with a specific moss control product. There are two products currently on the market with the same active ingredients, Jewel by Scotts and Pan Glory by Rigby Taylor. As with all pesticides carefully follow manufactures instructions and current spraying legislation following completion of a COSHH Assessment. Follow up a couple of weeks later with a light surface scarification to physically remove any dead moss. At this stage overseed with a traditional fine turf seed mix comprising a blend of bent grasses and fescue grasses at a rate of 35g per m<sup>2</sup>. Please find enclosed a turf grass seed booklet to aid in the selection of well performing cultivars. On this occasion do include fescue within the seed mix as it is more likely to germinate rapidly than the bent and will help infill weak thin areas more quickly with grass thereby minimising the potential for moss to re-establish.
- Increase the amount of fertiliser applied just to the three new greens. Calculating the amount of nitrogen applied to the rest of the greens from the figures provided indicates this to be in the range of 3 – 4 g of nitrogen per m<sup>2</sup> per year. This is ideal for the original soil/sward compositions and is giving you very good results. Do not change the fertiliser product, application rate or timing of applications to the original greens.

We recommend however that you double the number of applications made to the three new constructions. Continue with the Rigby Taylor Mascot Microfine 8:0:6 product at the same low rate as at present but aim to apply every month from March to September. Grass growing on a sand based rootzone will require more fertiliser than grass growing on soil and the presence of moss, increased disease and reportedly weaker growth confirms this.

As the infiltration data indicates, drainage rates are in the region of 10 times faster than the original soil based greens and consequently fertiliser will leach through these rootzones more readily out of the reach of the grass root system. Over the past few years, rainfall levels have been greater than in typical summers and this has probably contributed to weakening grass density and increased potential for moss establishment.

## Other Issues discussed during the morning

### Organic Matter Reduction

There are a couple of options available to start the physical removal and break down of the layer of thatch found beneath the greens. Either incorporate a shallow micro hollow coring into the August maintenance week or adjust the depth of the scarifier unit that you currently use. Certainly all types of this work should be carried out during periods of strong growth under dry soil conditions and followed up by an application of top dressing. If two treatments could be worked into the maintenance programme this year it would be beneficial.

## August Maintenance Week

I am delighted to hear that the club incorporate a two week maintenance window into the fixture list. It is critical that maintenance can be carried out at the right time of year and I am delighted to hear that important necessary work is scheduled for August when recovery can be relied upon and soils should be at their driest to maximise the effects of deep aeration treatments. This work lays the foundation for good performance for the rest of the year.

### Top Dressing

It is proposed that consideration be given to increasing top dressing inputs particularly as you have your own Dakota spinner top dresser available. Smoothness, trueness, green speed and firmness of greens is likely to be further improved by increasing the amount of top dressing applied each season. Aim to increase the number of very light top dressings applied during the spring and early summer months. The aim should be to only apply a light dusting on each occasion, but if this work could be dovetailed with some form of shallow non-disruptive surface aeration work such as sarel rolling or star slitting and followed up with brushing, there should be minimal if any impact to playing conditions.

### Bird Damage on 14<sup>th</sup> Green

During the visit we did notice quite extensive bird damage to the 14<sup>th</sup> green. As discussed at the time peg down an old fertiliser bag overnight and count how many leatherjackets come to the surface overnight. If there are more than 12 – 14 leatherjackets present apply an approved amenity insecticide containing the active ingredient chlorpyrifos. Spray the 14<sup>th</sup> green and carefully monitor the other greens for any further signs of bird damage. Ensure all spraying is carried out in accordance with manufacturer's instructions, current spraying legislation and following completion of a COSHH Assessment. Note that chlorpyrifos can only be applied once during a 12 month period.

### Turf Iron

I am delighted that the club have recently taken delivery of a turf iron. These are an excellent piece of equipment for improving smoothness and trueness as well as increasing green speed. This will help develop playing quality yet without the need to overly close mow. We hope that you will experiment with frequency of use, however during the main playing season between April and September consider using the turf iron once per week in preparation for weekend play or prior to important competitions. We hope that you will also consider using the turf iron during the growing season on a quiet day of the week to replace mowing. Rolling instead of mowing reduces the stresses placed on the turf and ultimately helps in the retention of healthy, vigorous swards of grass.

## Conclusion

I was absolutely delighted with the condition of the putting surfaces on the original greens with sward composition and health of the turf being excellent for the time of year. The greens were presented in very good condition and I am confident that under spring and summer conditions with appropriate maintenance inputs these greens should present excellent putting surfaces.

Moss establishment has become a problem on the three reconstructed greens. In view of site conditions and discussions held during the visit a number of recommendations have been made including increasing fertiliser inputs this season. This should achieve improvements in grass growth

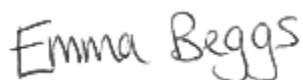
and sward density which should reduce keep out moss ingress and also hopefully reduce disease incidence next autumn.

Infiltration rates on the 9<sup>th</sup> and 16<sup>th</sup> green were also carried out as a part of the winter assessment. On the soil based 16<sup>th</sup> green the average infiltration rate was 1.5 mm/hr, whilst on the 9<sup>th</sup> green the infiltration rate was significantly higher at 12.5 mm/hr. These infiltration rates and the influence on leaching of nutrients further supports the decision to increase fertiliser inputs on the three new greens.

During the course of the visit we did discuss a number of additional issues around the course including thatch reduction measures, top dressing inputs, leatherjacket control and use of the new turf iron. We hope that these suggestions can be used to adjust the maintenance programme for the coming year to further improve quality of putting surfaces here at Ringway.

Should the club wish STRI to carry out any further agronomy visits over the course of the year, please do not hesitate to get in touch through the STRI Northwest Regional Office on 0151 342 7832 or alternatively via my email address [emma.beggs@stri.co.uk](mailto:emma.beggs@stri.co.uk).

Signed

A handwritten signature in black ink that reads 'Emma Beggs'. The signature is written in a cursive, slightly slanted style.

Emma Beggs, BSc (Hons), MBPR, RIPTA  
Turfgrass Agronomist