Making great sport happen

Royal Copenhagen Golf Club

Advisory Report on the Golf Course incorporating the STRI Programme

Report Date: 25th August 2016
Consultant: Alistair Beggs

Royal Copenhagen Golf Club

Date of Visit:	Monday 22nd August 2016
Visit Objective:	To review prevailing conditions and offer advice on future management.
Present:	Mr Hans Ole Voight, Mr Mogens Nielsen, Mr Jens Tarp, Mr Christian Tage Hansen, Mr Martin Nilsson, Mr Martin Hjort, Mr Alistair Beggs – STRI
Weather:	Dry and partly sunny. No precipitation. Temperature 21°C

Headlines

- The greens continue to offer an authentic fescue/bent dominated experience, and good ball roll and profile characteristics. If there is a criticism it lies only with visual presentation, the main blemish being clover contamination.
- Clover is being controlled using iron sulphate. Some progress is being made in this respect.
- Green surrounds show similar characteristics. Control of clover and rye in these areas is time consuming and additional manpower is needed to facilitate this effectively.
- Fairways are poor, and efforts need to be made to improve texture and quality of cut.
- Criticism continues to be received about bunkers. Changing the characteristics of the sand using zeolite is under trial. Further options include adding soil or exploring liner materials.

Key Actions

- Continue to focus on clover control on greens and surrounds using sulphate of iron at 60 Kg/Ha.
- Plantains should be hand weeded and rye on approaches hand slashed or turfed out.
- Fescues should continue to be drilled/potted into greens and green approaches.
- Surrounds and approaches should remain a focus for top dressing.
- Look to improve the quality of cut on fairways; experiment with using 7 bladed reels, utilise light liquid feeding rather than granular applications, and maintain sand application intensity. In time, seed drilling and wetting agent application can be explored too.
- Explore the idea of employing additional part time labour in the summer to tackle weed issues and perhaps allow existing staff to deliver a higher frequency of hand mowing to greens.

Objective Measurements (Cut at 4.2mm and roll)

Measurement	Average	Target Range	
Soil Moisture (%)	18.9% (range 17.8-20.4)	15-30%	
Hardness (Gravities)	116 Gravities (range 110-124)	100-140 g	
Smoothness (mm/m)	18.4mm/m	<25 mm/m	<19 mm/m
Trueness (mm/m)	7.6mm/m	<10 mm/m	< 6 mm/m
Green Speed	9ft 7in	9ft – 9ft 6 ins	9 ft 6 ins – 10ft

Key: In Target | Marginal Variance | Out of Target

Photo Observations and Comments

Figure 1: Putting qualities are very good across the site. Fescues continue to thrive in most greens with particular success achieved at the 1st since my last visit. Performance data prove the case (See below).

Figure 2: Profiles remain very good and show no visual signs of organic matter build up despite a couple of mild wet winters. Lab testing will follow to confirm this.

Figure 3: Some slow success is being achieved by controlling clover with iron sulphate. The technique is still being developed but there is good evidence of clover decline across most greens.

Figure 4: A close up of the impact of iron sulphate on a colony of clover. The centre has been burnt out by the first application, the second application is now burning the perimeter.

Figure 5: Dollar spot is not a widespread problem but it was encountered through the rear of the 12th green. It needs to be monitored carefully particularly if weather conditions turn warm and humid. Avoid excessive nitrogen stress.

Figure 6: Surrounds still show significant clover contamination and this is detracting from the visual appeal of the green complexes. Rye contamination e.g. 1st makes this worse. More labour is needed to tackle these issues effectively.

Figure 7: Although clover contamination on tees has less impact on play, once again it detracts from presentation of the course. This needs iron treatment too.

Figure 8: The quality of the fairways is poor and they need to be improved. We discussed a number of measures to improve the situation in addition to sand dressing which has now begun.

Figure 9: Sand dressing is beginning to have an impact on profile performance. This is the profile at the 1st which is one of the wetter and more shaded fairways. Note the sand in the surface profile.

Recommendations

Greens

- As performance data indicates, the ball roll qualities on greens are excellent. Therefore, no significant changes need to be made to mowing or refinement practices on these areas. A perceived increase in bent populations is real but the balance is still good and will tip back in favour of fescue in a dry year.
- The blending of old and new areas is not yet complete e.g. 2nd, 15th etc. The mismatch is purely visual and relates to higher levels of bent in the more mature turf. Time will blend the swards but in this slow growing environment the process will take time.
- I remain concerned that one or two weaker perimeters still exist e.g. 1st. The problem front right would be helped by an increase in hand mowing. The problem to the rear needs a root break, similar to the breaks inserted to the rear of the 3rd and 9th greens.
- Anthracnose, seen through the centre of the 18th green, is a disease of Poa annua. It can be left to kill this grass as long as it doesn't become too aggressive. If it does, localised micro coring and spoon feeding with N will be necessary to halt it.
- Dollar spot was noted through the rear of the 12th green. This needs to be monitored carefully. With no fungicides available this condition will need to be managed with additional nitrogen applications if weather patterns turn warm again. Monitor it carefully. It can be aggressive.
- I'm delighted that the strategy to control clover contamination is beginning to show some benefits. The first application of iron sulphate made at the 60Kg/Ha rate has certainly burnt the clover and has not damaged the grass. The second application applied a week later should build on the impact of the initial application. Review the rate of success over the next few weeks with a view to extending treatment to tees and green surrounds next year. There should be an expectation that these treatments will need to continue to keep clover under control. My hope is that this will be on a much smaller scale in the long term.
- Less aeration this year has not been detrimental to surfaces or profiles. However, as autumn nears there will need to be a return to 8mm and 12mm solid tining to vent profiles and allow seed introduction.
- Ensure all greens receive at least one general application of fescue seed. I am very content for this to be delivered after a shallow 12mm solid tine treatment.
- Top dressing must continue at a rate which retains the current excellence of profile. This system is less productive than at most other clubs so there is not the dilution demand at Copenhagen. Nevertheless, dressing not only helps dilution but pitch mark recovery, recovery from deer damage etc. Aim to deliver circa 80-100 tonnes per annum.
- Continue to use the Air2G2 compressed air unit – it has real benefits. However, do not use it as a replacement for the verti-drain.

Green Collars, Surrounds and Approaches

- These areas still show significant contamination from clover and it is detracting from the visual presentation of the course. Over the next twelve months look to extend iron treatments onto surrounds and approaches.
- Whilst iron is unlikely to cause any long term damage to grasses or profiles, in this environment it is important to keep root zones beneath treated areas as open and free draining as possible. This means regular aeration, through a variety of depths and regular sand dressing. I am pleased to hear three sand dressings have been made this year. At least the same and preferably more sand must be applied next year too.

- Rye grass continues to impact on playability and combines with the clover to give an untidy appearance. This is an altogether more difficult foe than clover. There are no chemical options available and mechanical refinement in the form of scarification etc. will not work. The only answer is to hand slash the worst patches with a knife and this of course is laborious work. Current staffing levels of 6 do not allow for much of this work to be done. Consider employing some part time summer help to tackle this problem in future years. The short term aim should be to have 6 full time staff and perhaps three or four additional part time summer helpers.
- With greens being firm to play it is important for approaches to perform similarly. Therefore, sand dressings must continue at a frequency of at least three applications per annum and there would be merit in running the Vredo through these sections too, not only to introduce seed but also to help break up crowns of rye.
- Ensure any compacted areas on green walk off routes are included in verti-drain compaction relief work throughout the Autumn.
- Insert a new root break through the rear of the 1st green.

Tees

- The clover contamination issue is as evident on tees as it is on greens and surrounds. It needs to be tackled in the same way. I appreciate it is of slightly lower priority here but if these areas are to be treated, in addition to greens and surrounds, there is a need for more labour to allow meaningful progress to be made.

Fairways

- The fairways are the weak point of the course. The quality of grassland is highly variable and so is the quality of cut. Where mowers are asked to work harder, i.e. on more productive fairways such as the 5th or 15th, the finish is poor. On finer swards, where fescues and fine bents are more abundant, the finish is better.
- The first consideration should be the cutting height. The current height of 16mm is higher than I would like. Consider experimenting at 13mm.
- Next, explore the cutting quality of the mowers. I'm convinced you will get a better finish with 7 bladed cylinders, so this is something to trial. Furthermore, consider getting some local expertise to review the set up and cutting angles on the units. See if the quality of finish can be improved.
- Continue to deliver sand twice per year at a rate of 500 tonnes per application. Heavier applications shall be made to wetter areas e.g. 1st etc.
- This year the fairways were fed with a NPK fertiliser of analysis 22:5:9 or equivalent. I do not favour this approach in the long term and would prefer a switch to a liquid tonic feed such as Farmura Porthcawl and Premium N or equivalent. To undertake this change, a more modern up to date sprayer is required to replace the existing aged model. Look at the Toro Multi Pro, or equivalent units.
- In the forthcoming years I would like both fescue seed drilling (Vredo) and wetting agent applications to be made to the fairways. The former treatment is important to improve the density and cover of finer grass through the base of the sward to support better lies. An annual pass should be sufficient in the first instance, probably carried out during the autumn. A wetting agent programme e.g. Aquatrols Revolution (or equivalent) would help deliver a more consistent set of fairways and would allow for more effective moisture management and controlled dry down in drier weather. This product would be applied on a programmed basis, perhaps five or six times a year and would require a new sprayer for it to be facilitated. A new sprayer is badly needed and would be a heavily utilised unit for a multitude of tasks around the course. The Toro Multi Pro or equivalent is the type of unit required.

Bunkers

- The bunkers continue to attract criticism from members. The main concern seems to be the softness of sand and the tendency of balls to plug or semi plug on entry. Repairing sand after deer activity does require quite a lot of sand to be disturbed in many cases, and this makes for a soft top which leads to plugging.
- Currently there is an experiment underway at the 18th. Zeolite, a water retentive mineral, has been added to the sand to see if this helps with the consolidation and subsequent firmness of the sand. It is too early to draw conclusions but I should be interested in any conclusions that develop.
- The other option, mentioned last time I visited, is to add a small amount of local soil to the sand (again in a trial bunker), to see if this can change the characteristics of the sand and make it firmer under consolidation. I suggested adding 10% soil to the top 25mm in the first instance to see the effect. Expect more moisture retention and lower infiltration, but it may be possible to develop a firmer base for play by doing this.
- If all else fails, look at more expensive options such as capillary concrete or Blinder bunker. These are porous lining materials over which shallow but controlled depths of sand are laid, they work well but are relatively costly to install.

Signed

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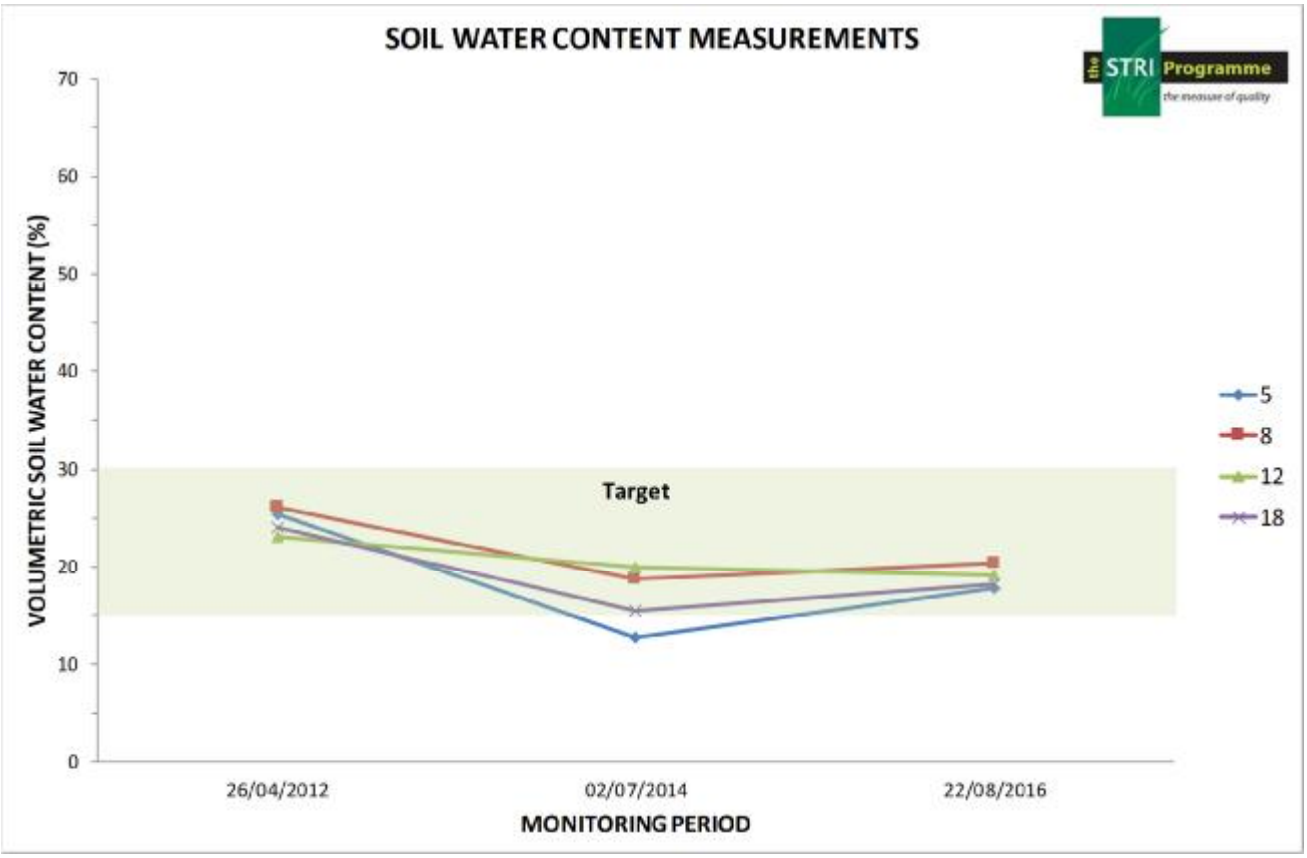
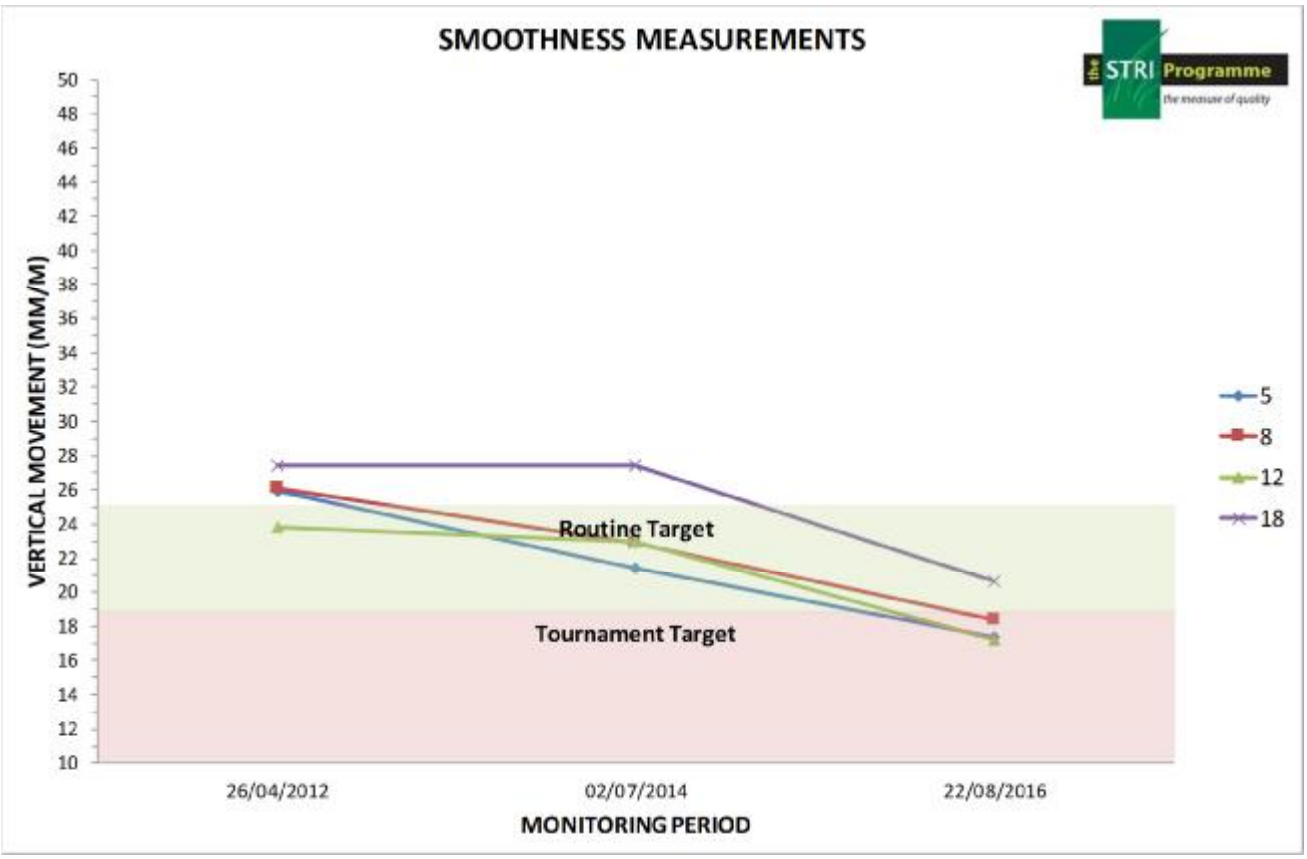
Objective Data

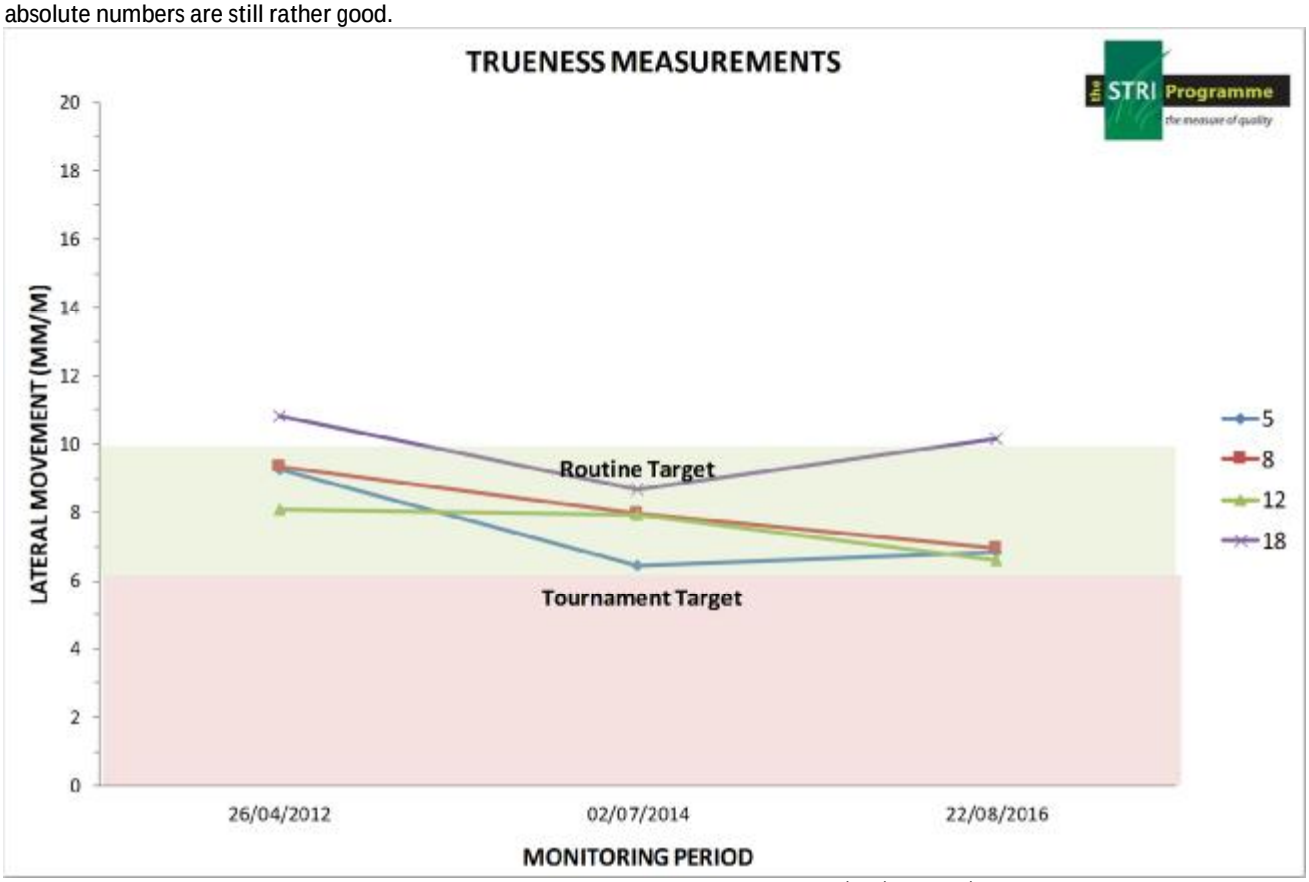


Objective Data Graph 1: Moisture content values were all in the ideal range on this test occasion. Good consistency was seen both within and between greens.

Objective Data Graph 2: The greens sit in the middle of the target range we use for links courses in the UK. They are firm without being hard. I know there are some concerns from members that the greens are too hard but these data do not indicate this. Indeed, surfaces are a little softer than when they were last tested in July 2014. Remember that firm greens are good from an agronomic standpoint. They don't deform, they resist ball marks, and the absence of thatch aids the promotion of fescue.



Objective Data Graph 3: Smoothness data were excellent on this occasion. These are the best data obtained at Copenhagen and to have three of the four test greens scoring within the tournament target range is an excellent achievement. Much of this is due to the excellent sward balance offered by bent and fescue grasses. Note the relatively poor performance of the 18th, although its absolute numbers are still rather good.



Objective Data Graph 4: Trueness values were a little more variable. However, the 5th, 8th and 12th greens performed superbly well. It is only the 18th which scored less well and much of this is due to the environment here and the higher percentage of Poa annua in the sward.

Objective Data Graph 5: Green speed values were good with all greens sitting within or slightly above the target range. The 12th green was particularly fast. Greens where smoothness trueness and green speed values are all within target offer good putting surfaces for golfers of all abilities. I'm pleased to say this is very much the case at Copenhagen at present and these greens compare very favourably with courses in the UK that are often being maintained with twice the number of staff on offer here. This is good quality and good value golf in a wonderful setting.