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KØBENHAVNS GOLF KLUB

AGRONOMY REPORT ON THE GOLF COURSE

Date of Inspection – 28 April 2011

1.0 PRESENT

- 1.1 The course was inspected with Mogens Nielsen and Martin Nilsson.
- 1.2 Matters arising were discussed with Steen Christian Pederson.

2.0 REVIEW

2.1 Course condition

The disappointing feature found during the course survey was the extent and severity of Snow Mould damage on greens. This had affected all the putting surfaces on the main course, not just the weaker greens as was the case last year. In the circumstances, we carried out a detailed investigation into potential disease susceptibility and had discussions on whether this disease damage has been promoted by some deficiency or excess within the management programme. Also, we considered if the long term plan continues to be the correct one.

Outside of the putting surfaces the re-laid surrounds had a much better completeness and uniformity than at the same stage last year. It was reported changes to mowing practice have helped considerably in reducing mechanical damage and offsetting the need for repairs. The new plan for this year is to take these areas out of routine irrigation with pop-up sprinklers. It was suggested you approach this idea with a degree of caution. It will not be a good idea to cause widespread drought stress in order to keep a few hollows dry and free of Poa.

Also in green surrounds we looked at the need to improve foregreens outside of the zones re-laid with imported turf, where there is still some scope for improvement.

Back into fairways I was delighted with progress. The turf is responding very well to a basic mechanical programme involving deep aeration and scarification. I noted good spring regrowth and a much better level of uniformity and turf quality. The next step to better fairways for longer will be the addition of spring and autumn brushing to reduce the accumulation of worm casts.

The only tees that did not look good were those at the 1st, which are also the tees that were not re-laid within the renovation programme using imported turf from the UK. However, more intensive maintenance during the spring and summer should improve matters.

In bunkers, the quest for the perfect sand continues. It was reported samples are to be sent to ETL in Scotland for tests. I will be pleased to comment on the results when these become available.

2.2 Resources and equipment

It will be an asset for the Club to buy tractor-mounted brushes for grooming fairways in spring and autumn, to lift up and fine the texture of the turf, and to stop the accumulation of worm casts that adversely affect mowing quality and can cause muddiness at times. Good equipment is available from, e.g. Greentek.

3.0 GREENS

3.1 Conditions found

All greens were scarred with Snow Mould damage to a greater or lesser degree from hole to hole, but there were good signs of recovery in most cases, even at the 18th. This speed of recovery is the primary benefit of having high populations of *Agrostis* and *Festuca* plants within the greens - these will grow fastest in response to improving spring weather. Where recovery was not so good this could be tied in with zones that were not receiving enough water from the irrigation system, where the underlying soil was dry to 2-3cm, e.g. at the 11th. In these circumstances rhizomes will not produce new shoots.

Looking at the turf in more detail, the greens identified with an excellent grass mix last year have kept a good dominance of the target species or have progressed onto an even higher content of *Festuca*. Greens that have shown special progress include the 3rd and the 12th. There was some moss in the 12th, but it was less than last year and this was not thought to be a special issue.

The 1st and 18th greens have made progress in response to overseeding with Bentgrass, which has made a good impact in displacing *Poa*. Indeed, the only green now that is not changing much is the practice putting green by the Clubhouse, which was particularly weak and heavily scarred. See Photograph 1 on Page 3.

Despite all the superficial damage, ball roll was quite good for the stage of the year. Green speed was slow at a generous height of cut.

As a separate issue to disease damage we looked at the condition of the green extensions created during the renovation project. As before, those extensions laid with turf from the old practice greens looked well, e.g. at 4th. Those created using imported turf from the UK were more variable in vigour and completeness, being thin at the left hand side of the 1st and droughted to the rear of the 10th. See Photograph 2.



Photo 1: Disease damage and shade on the practice putting green



Photo 2: Drought damage at 10th

Below ground, thatch build up was less than 1cm and was quite woody. Root growth was good, except beneath weaker places on green extensions.

Overall compaction control and drainage was thought to be at the optimum, but there still needs to be action in the centre of the 17th and at the 18th in general, by carrying out “Drill and Fill” to achieve the best balanced growing environment. A typical soil profile is shown in Photograph 3, while Photograph 4 illustrates the sand root break at the 1st that calls for ongoing hollow tining in summer.



Photo 3: Typical soil profile highlighting thatch depth



Photo 4: Sand root break at 5cm beneath 1st green

3.2 Assessment

In view of the extent of disease damage on greens we discussed:

- The underlying targets of the management plan;
- The details of the programme applied in 2010;
- The results of recent chemical analyses;
- The structural condition of the greens.

In summary, there is nothing that might be a deficiency or an excess within the programme that could have influenced the level of disease incidence.

Nor is there a better alternative in respect of the long term strategy for greens' management. The current plan is intended to put the turf into the best possible condition to withstand environmental stress and to recover quickly if there is some damage. This will not put the greens in a position where they are immune to fungal attacks, but it will ensure that when there is a problem as a result of extremes of weather this damage will recover comparatively quickly, as was happening on the day. The only extra points advised were to apply some supplementary fertiliser at the 1st and 18th, to feed for *Agrostis* rather than *Festuca*, and to increase irrigation inputs to restore a fully moist soil profile in all cases.

Given the surface and subsurface condition of the greens I really cannot envisage extensive disease damage being an ongoing problem year on year. Indeed, on the basis of past experience I think it will be several years before you see anything remotely similar.

In contrast, on the practice putting green by the Clubhouse similar disease issues are likely to be an ongoing problem in most years, given such a difficult to manage growing environment. Here it might be said it is not worth spending a lot of time and money trying to make improvements when the green is showing very little response.

Local areas that do not seem to be improving elsewhere are the extension areas laid with imported greens' turf from the UK, e.g. to the left of the 1st and at the rear of the 10th. In these areas the thin layer of soil ("turfsoil") imported with the turf has become compacted and this is causing shallow root growth. In turn there is heavy drought damage where irrigation is not perfect. See Photograph 2. For the moment I suggest you move the weak area to the rear of the 10th into green surrounds. All these weaker places must be aerated frequently with the Procore (every two weeks when ground conditions are moist). Beyond that I suggest you hollow tine, add Axis and overseed on two or three occasions during the summer. If though you still do not make headway, consider returfing in autumn 2011 or 2012, using nursery turf or turf from one of the practice course greens to restore completeness with material that is better adapted to this particular growing environment, ensuring you remove all the turfsoil.

This point led us on to discussing the value of a good turf nursery. I think there is much to commend intensifying the maintenance of the nursery, to produce good turf for repairing greens. Also, you might think about creating a second nursery on the practice course in an area that can be readily irrigated in dry weather as well as receive routine treatments. This will give you continuity of supply year on year, whilst working around the problem of restrictions on fencing to keep out the deer when the ground is sensitive to damage.

3.3 Treatment programme

No major changes were advised to the ongoing management plan. Where comment was made on particular items, these are confirmed as follows:

Aeration. Aim to solid tine with extra frequency on the extension areas, to maintain root growth through the turfsoil layer into the underlying profiles. Plan hollow tining here in July alongside similar operations on the 1st, 18th and practice putting green. At the 1st, 18th and on green extensions backfill

the holes with Axis before top dressing and overseeding. Consider further hollow tining, Axis and overseeding the 1st and weaker extension zones at the end of summer.

Fertiliser. Plan a full rate application of summer fertiliser to greens in July, using, e.g. 14.0.0 at 20g/m².

Wetting agent. Review the success of changes to the wetting agent to be used during the summer. I still think Revolution is the best, but I agree it is expensive.

Drill and Fill. Include the rudimentary Drill and Fill discussed previously at the 17th and 18th as part of the autumn/winter programme 2011/12.

4.0 GREEN SURROUNDS

4.1 Conditions found

There was a better completeness of cover on re-laid banks and mounds around greens, with none of the scuffing that was widespread last year. Cutting with a better mower has helped considerably. At that stage, the only thin spots were on dry zones, e.g. at 12th and over the sand soakaways, e.g. at 13th and 14th.

At the 5th, the hollow to the rear/left is not draining well, so an outflow from the soakaway to a positive point of escape will be needed if the Club sees this as a persistent problem. This will call for digging in a new pipe over a considerable distance.

Looking forward of greens it was reported there is a plan to improve the old fairway turf on foregreens, to make it finer and tighter, and so blend in the imported turf rather better. The weakest foregreen was at the 6th, where the fatness of the soil in the upper profile is supporting a Poa turf type. Ongoing hollow tining and sanding will be particularly important here.

4.2 Assessment

Banks and mounds had quite a good vigour, even without fertiliser, but I still think at least one if not two applications of nitrogen will be needed during the spring and summer if the height of cut is to be reduced in stages, as planned. Use the same fertiliser as for greens.

With respect of irrigation, here it was reported it is planned to hand held hose only in dry weather, to keep the pop-ups focused on the putting areas and avoid flooding in low spots. I suggested that if the height of cut is to be tightened, this approach to irrigation will put a lot of stress on the surrounds and may cause damage over a wide area in an effort to keep weak grass out of one or two hollows. Indeed, without automatic irrigation I strongly recommend you do not reduce the height of cut below 10mm: 12mm may be necessary. Keep the results of this approach to irrigation under review and, if necessary, revert to full circle operation of greenside pop-ups if the surrounds struggle. Help retain strong root growth by keeping up a good routine of solid tine aeration when ground conditions are moist, to sustain maximum drought tolerance.

On foregreens, the priority treatment for improving turf quality will be good mowing with fine turf reels as planned, clippings removed. Tie this in with hollow tining at least twice over the spring and summer, and follow on by top dressing and overseeding with Fescue species. Boost the establishment of new grass with local applications of 6.5.10 fertiliser. My suggestion is to focus this work where there is little or no imported Fescue turf forward of putting surfaces, e.g. at the 6th and 17th, rather than apply this on all foregreens.

5.0 FAIRWAYS

5.1 Assessment

There has been good progress in response to an effective mechanical programme including vertidrainage as a special item. This must be continued on an annual basis in future. Over the next few years this should be combined with scarifying using the Veemo's in spring. Continue to mow the fairways at a height of cut of 12-15mm.

To add to this programme I think it will be an asset to be in a position to brush the fairways routinely. This will not only help to disperse worm casts in spring and autumn, but will also help lift up long and lying grasses to the mowers and improve texture. At that stage worm casting was not too bad (except at 15th), but in general the turf could be cleaner with benefit and smearing of worm casts does have an adverse effect on turf quality.

6.0 TEES

6.1 Assessment

The only comparatively poor tee box was at the 1st, where I suggested a monthly overseeding programme using 30-40% fine-leaved cultivars of *Lolium perenne* in a mixture of grasses that otherwise will be *Festuca* species. Combine this with light top dressing each time.

7.0 PRACTICE GREENS

7.1 Assessment

All the practice greens were much stronger than last year and generally complete. Weed control work was the main item underway.

8.0 NEXT VISIT

8.1 Proposal

I suggest the next inspection should take place at a different time of year to review the condition of the course in different season, e.g. in the second half of summer or in the autumn. Please let me know when you think this will be most appropriate.

D M STANSFIELD
9 May 2011