

Special sustainability

‘Golf and trees don’t mix’ is an old saying amongst architects, but when Norbert Lischka MG was faced with filtration problems on his woodland course in Germany he set out to disprove it...

Falkenstein is one of the older courses in Germany as it was founded in 1906, but the course itself is somewhat younger. It was constructed by Colt and Harrison between 1928 and 1929.

Head Greenkeeper, Master Greenkeeper and BIGGA member Norbert Lischka has a long relationship with Falkenstein – nearly 20 years. When he joined he found a club debating many issues. The members were not satisfied with the push-up greens that consisted mainly of annual meadowgrass, although this was not the main problem which was bad drainage of the greens.

The greens had been built using existing soil with a very poor filtration rate. Norbert said: “It was three to five litres of filtration an hour at most. Several years ago some meetings were held in which the members were presented with the choice of a complete renovation or a partial improvement. The advisors we had at that time were split – two were in favour of a total reconstruction and two advised a gradual improvement!”

The members opted for a more gradual approach, for a number of reasons. The greens at Falkenstein are so uniquely undulating that this would have been lost during a complete overhaul. Furthermore this would have meant a lot of inconvenience for the golfers for a number of years.

APPROACH

Approaching the problems meant a combination of ‘drill and fill’, improving the light and air conditions around the greens and a sophisticated feeding programme for the grasses on the greens. Norbert also intensively tested the best combination of grasses in the woodland area of Falkenstein.

The greens were 100% annual meadowgrass with all its disadvantages, made worse by the combination of poor infiltration and the absence of significant light and air.

He said: “Initially I tried to take control with the traditional bent plus fescue combination. After some years it became evident this had not been successful. The main cause was the lack of sufficient



light, height of cut (3.5mm in summer) and the size of the greens (450m square).

"The next grass we introduced on the greens was the Agrostis variant Penn links. But this was also not exactly an overwhelming success. Finally we sowed with Penn A4. This hit the bull's eye. Especially on sunnier greens Penn A4 held very well. However, on more shaded parts of the green, Penn G6 was more successful."

Norbert is realistic and professional enough to realise that getting the right grasses doesn't guarantee a perfect course. The growing conditions must also be perfect.

"This is a complex matter on a woodland course. Sure, you can remove trees, but those trees enhance the beauty of the course. So you have to find a balance between removing trees and creating light and air on the green. With some greens here it is even more complex because they are almost hidden between a number of hills."

As mentioned, bad filtration was a major problem. The poor drainage could not be improved with the usual methods, especially because the disturbing layer is out of reach of the longest Vertidrain pins. So they went for the German version of the 'drill and fill technique'. 50cm deep holes with a 27mm diameter were drilled in a green then immediately filled with pre-dried sand.

Norbert said: "We were lucky that we found the original sand below the 50cm depth, which finally gave us a chance to drain the greens."

According to Norbert this was a successful, but very labour

intensive method of improving the greens. Seven greenkeepers would work for a whole day on a 450m square green. Norbert discovered this problem cannot be solved by one treatment alone. Some greens were treated four or five times and still the infiltration was not perfect. The drill holes were filled with a very rough fraction of sand with a grain size of between 0.8mm and 1.6mm.

SUSTAINABLE?

Norbert is convinced his application of Penn A4/G6 creeping bentgrass for his greens was the most durable option. This has everything to do with the specific management of creeping bentgrass.

Creeping bentgrass carries the prejudice of a high demand of fertiliser and a substantial accumulation of thatch. Only very intensive scarifying and topdressing makes it possible to stay in control.

But Norbert doesn't give the 30gr per square metre of pure nitrogen that is often prescribed, but only around 10gr. All fertilisers have an organic composition and this, in combination with adding seaweed and mycorrhizas should result in an active soil life and a good decomposition of thatch. Of course this would also be stimulated by the improved ventilation on the greens.

As already indicated, all fertilisers are organic. Seaweed is always 'on the menu' at Falkenstein, but the club's method of fertilising is remarkable. Currently, the greens are a patchwork of Poa in large parts with creeping bentgrass. Norbert exploited the aggressive way of

growing the Penn A4 and Penn G6.

He explained: "I fertilise in two rounds. First I give the starving patches of Poa a little bit of fertiliser by hand. After that the whole green is fertilised by a cart. So the meadowgrass gets more nutrition than the creeping bentgrass."

Norbert sticks to the theory that the aggressive, hungry creeping bentgrass will try to colonise the meadowgrass spots because there is more nutrition available. The stolones of creeping bents, which grow sideways, are quicker at getting the nitrogen than the weak Poa annua.

But in a way this is more than a theory, as Norbert sees a clear increase in the percentage of bentgrass – and a delegation of visiting greenkeepers were impressed by the vitality of the agrostis stolonifera during a visit last October.

about the author



Norbert Lischka MG has been Course Manager at Hamburg-Falkenstein Golf Club in Germany since 1994. After studying agriculture he travelled the world before landing his first greenkeeping job at Unna Frondenberg Golf Club. He has been a member of BIGGA since 1995 and is a member of the German Group of Sustainable Greenkeepers.



The Turf Fox

Norbert is also a self employed consultant at his company "The Turf Fox". He concentrates on sustainability and ecology in modern golf course management.

Many golf club committees and greenkeeping teams throughout Germany have used his on-site, face-to-face consulting.

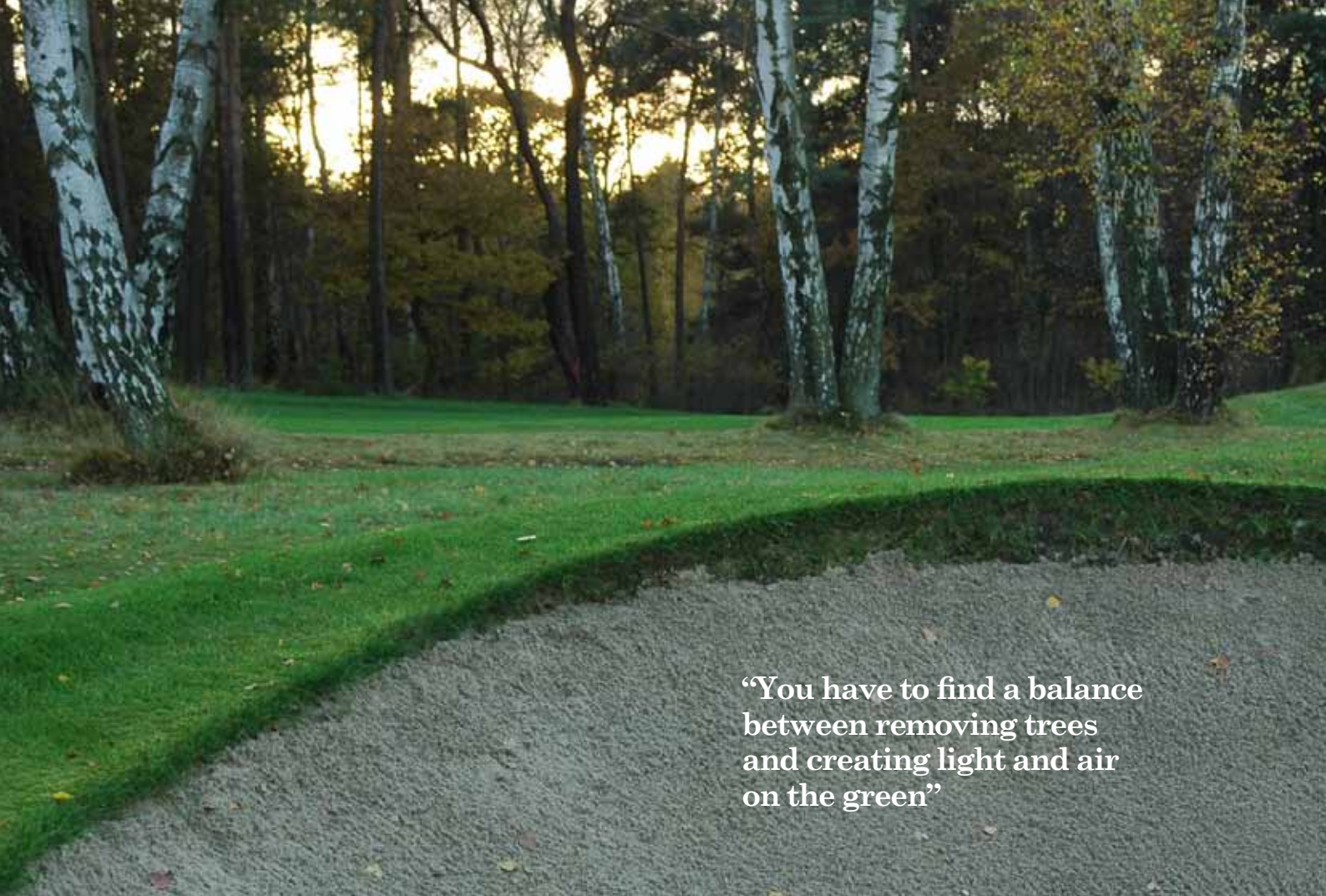
Another area his varied and comprehensive background provides is organising maintenance teams and instructing staff. Together, Norbert's comprehensive background can assist in all areas of golf course management.

As an educated mechanic and farmer he combines technical, manual, and decades of hands-on experience based in sound knowledge of biology, ecology, soil chemistry and sustainability.

If your club would like assistance with cost savings and turf improvement in the face of the heavy regulation and restrictions modern golf courses face, please do not hesitate to phone or email Norbert at:

Tel: 0049 177 333 0356
lischka@der-rasenfuchs.de
www.der-rasenfuchs.de

Please note Norbert's company and website will be live from 1 April 2014.



“You have to find a balance between removing trees and creating light and air on the green”

WATER

One successful factor has not yet been mentioned – water. Norbert has been working with Greensafer for over 15 years. This machine makes use of electrolysis of water in which very little regular salt has been dissolved. During electrolysis of this salt minimal quantities of chemicals are being released. This happens when the water comes into contact with plates charged with a DC voltage. The ozone, peroxide, chloride and other chemicals released has been given the name 'Biodyozon'.

Very small quantities of this sub-

stance are injected into the irrigation water, so as a greenkeeper you don't have to fear your greens turning white because of the sodium or chloride burn.

Of course, the consequences for the greens are more important than the technique. Norbert said: “We all know the conditions whereby irrigation water is not optimal because of pollution (eg by bacteria).”

So, the irrigation water is disinfected by the released chlorine. According to Norbert, the actual effect is that, with the help of the Greensafer, a far more active conversion of the thatch takes place.

Also, chlorine kills most algae

Photos courtesy of Hein van Lersel.

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on lakes and ponds. Ozone in conjunction with water gives active oxygen, which through your irrigation system helps to stimulate soil life in the rootzone. On top of everything else, Biodyozon also significantly reduces your casting worm problem.

SUM OF ITS PARTS

The right grasses, the right light and air conditions, a penetrable top layer, seaweed application, good irrigation water and paying attention to the soil biology all results in great looking greens – even in October when many grasses are past their best. The top layer contains a very small amount of thatch. Smearing can be seen a little around the 'drill and fill holes' although Norbert said it's only a matter of time before this disappears. You can see how rich the old top layer of the greens was. By constantly bringing in new dressing material this old top layer disappears automatically.

Norbert concluded: “I'm very thankful and proud that I have had the chance to work for nearly 20 years for such a prestigious golf club. I would like to say a big thank you to the members and the green-keeping team for their patience, at what I consider to be one of the most beautiful golf courses in Europe.”



LEFT: 'Drill and fill' hole pattern on a green