



Photo: Dr. SJ Heale



Are
your

Tim Colclough provides some helpful
hints to improve your putting surfaces

greens up to

scratch?

After yet another 'winter of discontent' at most of our inland courses it's not only the frustrated golfers who are desperate to see dry, playable surfaces, green-keepers too must be praying for a cessation of hostilities from above.

But do players expect too much from our bruised, battered, rain-sodden, frost-bitten and long-suffering patches of turf that we call putting greens, or do they deserve better? What standards of performance and playability should they expect and how can greenkeepers achieve that delicate balance between maintaining healthy, vibrant and sustainable turf and providing pace and bite through the competition season? How can we measure or judge the performance of the greens and how can we improve those standards? If someone could come up with a simple solution to these issues Agronomy would become a redundant occupation, fortunately for me and my colleagues the answers are not simple and are always different.

I'd like to start this discussion, somewhat controversially, by looking at the end product from the client's perspective. After all it is the club member who, effectively, pays all our wages. In simple terms we are the supplier and they are the customer and if we don't get it right they will look elsewhere (or we will go elsewhere!). What are the standards of performance that they judge the greens by? And how can we improve those stan-

dards to keep our customers coming back for more?

Green Speed

This must be right at the top of the list for most players as the key parameter for judging the greens, particularly from May through to September. Inevitably it is also the major area of conflict between the interests of the pace-hungry golfer and the grass loving green-keeper.

Green speed is easy to measure with the now well established Stimpmeter. Not only is it a reliable and quick test, but we also have a recognised set of standards to compare our results to. I truly believe that we should be regularly checking green speeds and keeping records of each measurement, matching it with other data that influence the result like time of year, cutting height, time after last cut, last fertiliser treatment, etc. It is also worth checking the speed after certain operations are implemented, just to see which have the greatest influence; what difference does a double cut make? What about a 0.5mm height reduction? How does it change during a hot, dry day? What about the influence of verticutting, grooming and top dressing? The list is endless. Sounds like a great idea for a research project to me!

This information would be a really useful ally for the greenkeeper, you would have a set of objective data so that when the players protest that the greens were much faster this time last

year - the evidence would be there. You would also know the likely effects of any one management operation, giving you the flexibility to choose the more turf friendly option - great for tournament preparation.

Currently we understand that the single major turf factor that affects green speed is cutting height, probably followed by surface firmness (which is related to thatch, moisture status, compaction, soil type, construction, etc). Third on the list would be grass density and texture (influenced by species, fertiliser, management, etc). But because mowing height has the biggest effect it is in this area that greenkeepers come under most pressure.

There is no doubt that this pressure is increasing and summer mowing heights continue to be pushed to the limits of endurance. Here I believe that greenkeepers have an obligation to stand up for the integrity of their beliefs, if only for the reason that there will be a pay-back for such practices. In the long term, and paradoxically, it will be the quality of golf that will suffer. Short term increases in green speed as a result of excessively close cutting (3mm or less for sustained periods) are directly correlated with poor winter performance, much increased susceptibility to stress (drought, disease, cold, stagnation, etc) and will encourage *Poa annua* at the expense of bent. A balance is possible and when sensible mowing heights are combined

Are your greens up to scratch?



Picture courtesy of Greenseek. 0113 267 6000

with other less damaging management techniques everyone should be happy. (See mowing article by Noel Mackenzie in last month's issue of Greenkeeper International).

Smoothness

There is no doubt that maintaining a strong, resilient and full turf cover will directly produce a smoother surface. The major causes of 'bumpiness' relate to weaknesses in sward coverage and the presence of blemishes like worm casts, weeds and disease. Particularly relevant at this time of year is the unevenness caused by the differential growth rates of the grasses in the spring. Most courses with high bent populations in their greens will be reaping the rewards in terms of the quality of the surface at this time of year. Those with full *Poa annua* swards will not notice this effect but the poor quality of the sward and the pick-up of growth will lead to unevenness for the reasons detailed above. One good reason to aim for bent domination of the greens.

Once decent growth does get underway, repeated light applications of top dressing will significantly improve surface smoothness, and may also help to promote the best conditions for improving pace – a management technique with direct and indirect implications for golf green improvement and one which Grass Science tries to encourage even at the low budget clubs.

Ball impact response

What is it that affects the response of a golf ball when it lands on the green? We all know that the skill of the player is the biggest factor, the

club and the ball selection also have an influence. But what is it about the turf that makes a ball stop quickly, retain back-spin or bound off into the trees behind the green?

Research work carried out by Steve Haake towards the end of the 1980's attempted to identify the factors that influence golf ball impact response. Somewhat inevitably he discovered that surface hardness had the biggest effect. Although the picture is not as simple as you might imagine. Excessively soft surfaces always stop a range of shots played into them, but this has little to do with backspin retention. It is much more likely that backspin will be retained on firm surfaces, this is because the time of contact between the turf and ball is reduced and hence the backspin is not converted into top-spin. As surfaces become harder backspin retention is increased but the energy of impact is not absorbed and the ball will simply bounce off a surface that is too hard. A turf with good resilience and some 'give' will reward a well struck shot, providing enough give to absorb most of the impact energy, yet firm enough to allow enough backspin to be retained so that the ball grips on its subsequent impacts. In other words well maintained, thatch free, healthy turf that is neither over nor under watered and drains efficiently.

Interestingly Haake also found that backspin retention was increased on bent dominated greens compared to *Poa annua* greens. An effect that may well have been related to the factors described above rather than a direct species link. In other words the bent tended to favour the firmer, drier greens.

Spatial Consistency

This is my term to describe the differences (or hopefully similarities) in performance between the greens around the course. Despite the best efforts of greenkeepers to produce uniformity of putting surface performance, the main factors which influence this parameter are very much out of their control i.e. construction and location. The differences in playing quality between a newly constructed sand dominated green and a traditional 'push-up' green are significant, particularly ball impact response. Similarly a green located on an exposed plateau at the top of the course will behave completely differently from a green placed in a hollow and surrounded by trees. When the two factors combine the potential for inconsistency escalates to worrying proportions.

Although it has now become something of a cliché, I still find myself reminding clubs of the dangers of reconstructing individual problem greens and creating 'one green which behaves completely differently to the other 17 on the course'. It is much more productive to take a long term, holistic view of the problem and many courses are now 'grasping the nettle' firmly in both hands and are embarked on complete green reconstruction programmes. On the other hand it may be completely unnecessary to consider reconstruction, especially if its just one or two greens that are causes for concern. There are other much less costly and less disruptive ways to improve problem greens to bring them in line with the rest. Every golf course has its own unique circumstances and clubs would be well advised to seek the assistance of a qualified Agronomist to discuss the various options available.

Temporal Consistency

Another fancy term, this time to describe the way greens change in performance through the year. Again a critical issue on golf courses these days because of the year-round nature of the game. No surprise that the method of construction has a huge effect; simply put, sand dominated greens are more consistent through the year, soil based greens tend to fluctuate according to weather conditions. Location is important too, greens that are exposed and dry quickly will perform better under wet conditions, the greens that collect water and are shaded will suffer when it's wet.

Species composition makes an enormous difference to the year round changes in the performance of a putting surface. Just like the differ-

ence between well drained greens and wet ones, *Poa annua* greens will fluctuate considerably from season to season; they produce seed heads through the late spring, are prone to drought in the summer, tend to lose colour and growth through the autumn, are prone to cold, waterlogging and disease stress in the winter and after all that look pretty awful in early spring. In contrast bent dominated turf is much more consistent in its performance through the year, and is much less prone to all the stresses that seem to hit *Poa annua* so badly. One very good reason for continuing the long term battle to improve the species composition of golf greens and, in particular, avoiding excessively close cutting in the summer.

Summary

The intention of this article is to highlight the standards of performance by which players judge our greens. An appreciation of these standards provides the green-keeper with a new perspective on the management of the course and, in particular, provides a focus for long term course development issues. The article also links the likely effects of specific turf management factors on playing quality and includes ideas for the manipulation of these factors to get the best performance from the greens. These suggestions are briefly summarised below:

- Keep records of green speed by taking regular stimpmeter readings throughout the year and take a note of weather and maintenance factors.
- Adopt a sensible, turf friendly approach to mowing height and use other less stressful maintenance methods to retain green speed.
- Maintain a programme of regular, light top dressing through spring and early summer to improve smoothness and pace.
- Sound turf maintenance practices that create a firm, resilient surface will favour skilful approach play.
- Take a long term, holistic approach to green reconstruction, there may be other less costly and less disruptive ways to improve isolated problem greens.
- Adopt a management programme that tilts the competitive edge towards bent, but not at the expense of good putting surface production – a balance is achievable and therein lies the true art of greenkeeping.

Tim Colclough B.Sc.Hons. PgD is a Senior Agronomist at Grass Science covering North-East England and Scotland. Tim and the rest of the Grass Science team can be contacted on 01204 377757 or on e-mail: info@grass.science.com.