The architecture of grass and green speed

Tim Lodge raids his bathroom to produce visual aids illustrating his take on green speed

Golf ball on a wire brush (left) and on a toothbrush

Imagine a wire brush. Imagine the wires are as densely packed onto the brush as they are on a toothbrush but all are exactly the same length. Imagine the brush is really big, as big as a golf green.

Now imagine rolling a golf ball over that brush. Because the wires are all really stiff, up to a height of maybe an inch or more their length isn't going to have any effect at all upon the rolling ball.

Now imagine they are nylon fibres like a toothbrush and not wire. Now maybe a length of about half an inch might be the upper limit at which the roll of the ball is affected. Below this height, it's unlikely that long or short fibres will make much difference.

You can perhaps see where I'm going with this. The extent to which a rolling golf ball is affected by the grass will be related in a very important way to the density of the shoots and to other factors such as their width and their individual 'floppiness'. It's not just about height of cut. Different grass species will have inherently differing degrees of stiffness in their shoots. Rather like men perhaps, this will also vary according to other factors like the pressure of the fluids within the leaf cells, a phenomenon known as turgidity which is related to the grass's water uptake.

Different grass species will also form swards with different shoot densities. The shoot density of a fescue sward for example is totally different to a sward of annual meadow grass. The photographs suggest that the shoot density of a healthy fescue sward is actually less than that of a meadow grass sward.

The width of the leaves will also be important, particularly in relation to how much of their surface actually comes into contact with the ball. This will also affect the amount of surface moisture they retain which will in turn affect the roll. Fescues of course have much narrower leaves than bents and annual meadow grass.

The point is that the height of the sward, the mowing height, may not be quite as influential in affecting the speed of greens as is widely assumed. Unfortunately, there is a desperate paucity of research on this very important question. How does the 'architecture' of the sward, including the height of cut, affect green speed?

The necessary experiments required to answer this would be fairly easy to set up and study. If anyone was prepared to fund this research, we at Agrostis would be more than happy to carry it out.

In the meantime, we should perhaps take the heat off greenkeepers who are often forced simply to lower mowing heights in the quest for faster greens.

This places both the greens and the greenkeeper under often quite unnecessary stress. If it were more widely appreciated that the situation is more complicated than simply the mowing height setting there might be a few less argument taking place and fewer jobs being lost.

Annual meadow grass sward (left) and fescue sward, both mown at around 4 mm

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