BOWLS SOUTH AFRICA

GREENS STANDING COMMITTEE

GRASS CLIPPINGS 3

August 2005

When a group of bowlers sit around after a game the conversation inevitably turns to the greens and more especially to the speed of the greens. The hero of the group would be the visitor who claims that his greens at home run at 15 secs over 27 m. He omits to tell his audience that there are large weak and bare patches on the green, the grass is not healthy, there are weeds and that the greens were graded as "D"s or "E"s.
In "Grass Clippings 2" we spoke about the quality of green keeping in the Republic. We identified a real problem in the unnaturally large number of "D" and "E" grade greens we had, and, in spite of the fact that we had a number of very good greens the "D"'s and "E"'s had brought the national average to a level below that of 50 years ago
To put it in a nutshell **"the demand for speed had far outstripped, not only the capabilities of some of our green keepers, but also, in many cases, the capabilities of our greens"**
As the demand for "speed" had been put forward as the prime cause for the apparent deterioration in our greens it is probably fitting that we, in this issue, analyse the dynamics of SPEED.

"SPEED"
PLAYERS DELIGHT – GREEN KEEPERS NIGHTMARE

1.0 Introduction

"Speed" is the most maligned word in the bowlers vocabulary and in the club is the commonest cause of friction between the green keeper (GKP) and his club members – many a good GKP has been sacrificed on the altar of "speed". The tension normally comes about because the average bowler does not understand the dynamics of speed and believes that every GKP, on any kind of green, should be able to produce a green running at 14.0 secs over 27 m.
While nobody denies that the players play better bowls on a "fast" green the health of the green is still the prime consideration and the quest for speed should never outstrip the capabilities of the GKP or the green itself.
To the bowler speed has a numerical value eg. A fast green would be a green running at 15.0 secs whereas a green running at 11 secs would be described as a "slow" green. This is all very well but what the bowler is really thinking of is the physical effort required to propel the bowl from the mat to the jack. On a fast green a gentle swing of the arm would be sufficient to reach the target while it might require quite a "heave" to propel a bowl the same distance on a slow green – when playing on a green running at 9.0 secs a jar of liniment to rub into the shoulders after a game would be in order.
What is the difference between a "fast " green and a "slow" green ? The bowl is the same - so – the difference must lie in or on the surface of the green.
The moment a bowl is delivered on a bowling green it starts to slow down (decelerates) and eventually comes to rest. This is because something on or in the surface resists the forward movement of the bowl. The rate of deceleration would depend on the amount of resistance the bowl encounters – the greater the resistance the quicker the bowl will come to rest.
As there are many factors which might contribute towards this resistance we define speed as follows -
"The speed of a green is in inverse proportion to the sum of the resistance the bowl encounters in it's passage across the green". The greater the resistance the slower the green and vice versa.

2.0 Resistance

In our definition of "speed" we equated it with the resistance on the green.
What then makes up " the resistance the bowl encounters in it's passage across the green" ?

2.1 Friction between the bowls and the running surface

We know that when a round object (eg a bowl) runs over a flat surface there will be friction where the two surfaces touch each other. The greater the area of contact the greater the friction

2.1.1 Soil Texture

- Deliver a bowl on a smooth, level cement surface the bowl will run for a long time, gradually decelerating, until it eventually comes to rest. The area of contact between the bowl and the cement is so small that friction or resistance at the point of contact is minimal – Up to a point this also applies to a bowl delivered on a hard 80 % clay base.
- Deliver a bowl on a bare soil base made up of 30 % clay and 70% sand there will be some ”give” in the soil base The bowl will sink slightly into the surface, the area of contact between the bowl and the surface of the green is now larger – the friction (and resistance) will be greater and the bowl will not run as far as it would on the 80 % clay.
- Deliver a bowl on a bare soil base made up of 3 % clay and 97% sand. The bowls will sink still further – the area of contact greater – more friction The bowl will come to stop much sooner. What we can say here is that the resistance to the bowl is inversely related to the percentage of clay in the soil base or directly related to the percentage of sand.

Note This does not imply that a clayey green is preferable to a sandy green A sandy well-drained green will always be much healthier than a green with more than 12 % clay.

2.1.2 The Mat

The grasses we use on our bowling greens spread laterally and eventually form a mat like a carpet which covers the whole green. It is then up to the GKP to ensure that the mat does not get too thick.

Imagine the grass mat lying like a carpet on any of the soil surfaces described above. The bowl will also sink into the mat. The thickness and texture of the mat will determine how far the bowl sinks into the mat – the thicker the mat the greater the area of contact.

The thickness of the mat can vary for different reasons -

- The Grass Specie - the finer Cynodon Transvalensis form a thin even mat which easily covers the whole green whereas the coarser Cynodon Dactylon (Kweek) uses up a lot of grass, stems and runners to form a mat.
- If there is more than one variety of grass (a Heinz Green) there will also be variations in the thickness of the mat on the same green eg. The thicker mat of the coarser Kweek interspersed with the thinner mat of the finer Transvalensis
- The extent to which the GKP uses the equipment available to thin out the mat. .

Note What we have established so far is that both the soil base and the mat can allow the bowl to sink into the surface of the green and contribute to the resistance

2.2 Mowing Height

Imagine the mat of grass lying on the surface of the green. While the majority of the leaves are taken up in the mat about 20 % will grow vertically and protrude out of the mat. As the bowl is delivered and runs on the mat the vertical leaves have to bend and will, to some extent, resist the forward movement of the bowl. The longer these leaves are (Mowing Height) the greater will be the resistance.

2.3. Rigidity

It is well known that some grass leaves bend more easily than others. This depends on the water content of the leaves which can vary with different varieties within the same specie. The extremes are, on the one hand, Tifdwarf which bends very easily and, on the other hand, C Dactylon (Kweek) which will offer more resistance to bending.

3.0 Relative Values

Having established which conditions on the green cumulatively determine the speed of the green we now have to determine their relative importance to the GKP. Studies at an American University concluded that the “sum of the resistance” was made up as follows-

- 70 % of the resistance came from friction losses at the area of contact – -
  35 % from the hardness of the soil base
  35 % from the thickness of the mat
- 25 % from the resistance offered by the leaves protruding from the mat – mowing height
- 5 % attributed to the rigidity of the leaves

It is also obvious that in each category mentioned in 2.0 (above) there will be many variables which, when grouped together will show an infinite number of permutations

4.0 Greenkeepers vs Club's Responsibility

It is now up to the Club Committee and the GKP to assess the "speed capabilities" of each green and, having identified the problems (if any), to apportion responsibility –

4.1 The Soil Base – changing this could be a costly affair – club responsibility

Note As the hardness of the soil base is a substantial contributor to the "sum of the resistance" it is obvious that the percentage of sand and clay is important. Yet, less than 30% of the clubs know the Particle Size Analysis (PSA) of their soil – a very simple test done by most labs or construction firms.

4.2.1 Mat – Controlled by the GKP but if the grass is unsuitable the GKP might recommend re - planting with a more acceptable variety.

4.3 Mowing Height – Solely the responsibility of the GKP

4.4 Rigidity – If unsuitable it would also affect the mat.

5.0 Last Variable

The last, and probably the most important variable, is the expertise of the GKP

Bearing in mind all the possible permutations one can say that even a relatively inexperienced GKP could produce a fast healthy surface on a green with minimum resistance (i.e. 88 % sand covered by C. Transvalensis) whereas on a green with maximum resistance (97 % sand covered by a coarse kweek) an experienced GKP would have trouble producing a green running consistently at 13 secs over 27m.. He would be obliged to reduce the "leaf area" to a level where the health of the green is threatened.

In between these extremes there are many possible permutations where the expertise of the GKP would make the difference between a fast healthy green and a "D" or "E" grade green

6.0 Conclusion

It is to be hoped that "Grass Clippings 3 " will bring home to many Club Committees and their members that speed on a green is not just a question of lowering the "mowing height" or indiscriminately thinning out the mat. It requires a detailed examination of each green by the GKP **and his Committee** to arrive at an optimal speed for that green. If there are inherent flaws then it is up to the Committee to weigh the costs of removing these flaws against the possible advantages - **the ball is in their court not that of the GKP.** If they have difficulty in coming to a conclusion the Club can call upon a member of the Bowls SA Greens Standing Committee to advise them.

In the "Grass Clippings 1, 2 and 3 we highlighted the position of the GKP vis-à-vis his club. Taken together the three articles have proved that greenkeeping is a partnership between the GKP and his Club Committee with each recognizing their own areas of responsibility.

If we have achieved this, and, the Disticts come to the party by recognizing good greens then we will go a long way to reducing the number of "D" and "E" grade greens.

As far as the expertise of the GKP is concerned the Greens Standing Committee of Bowls SA with the assistance of Bowls SA will attempt to reach each GKP by holding seminars in most of the Districts and by direct communication like Grass Clippings.

Greens management might be an art but it is an art which is continuously changing as new techniques are discovered. It is up to the Club to ensure that their GKP is given the opportunity to acquire that knowledge..

Footnote In the latest issue of the "New South Wales Greenkeeper" the writer remarks on the fact that players using minimum bias bowls are "demanding" that the GKP speeds up his green so that the bowls can turn more. If he wants more turn why not buy a "Classic" and not bother the GKP. Oh well ! we are not the only country with "speed merchants"

Charles Louw