

GRASS CLIPPINGS 30

COPING WITH GROWTH

A Green keeper's (GKP) primary objective is to create **and maintain** a playing surface which is completely covered by a mat of healthy grass. This mat must be of even texture and allow the bowl to run smoothly at a reasonable speed.

While creating that surface might be relatively easy the maintenance might more difficult.

When a GKP takes over a green for the first time the first thing he realises is that the grass is growing, both vertically and horizontally. The grass is getting longer and the mat is getting thicker and unless he does something to curb or restrict this growth he will soon have a nice lawn and irate members.

"Mowing" is the term we use to describe the various cultivation practices the GKP employs to control the growth of the turf grass and to maintain it at the desired level for a bowling green surface.

Grass

No GKP can plan a mowing management programme until he is conversant with some of the most important characteristics of the grass planted on his green.

a) Growth - All the grasses found on bowling greens have a common characteristic in that they spread laterally to form a contiguous mat which eventually covers the whole green. In fact, their lateral spread is greater than the vertical growth and in the case of the Bayview grass the lateral spread is 80 % of the total growth.

b) Although the GKP might look upon his green as a single entity it is, actually composed of millions of individual plants each having to fend for itself.

c) Food - The grass plant produces it's own food through photosynthesis which takes place in the leaves. Each plant must have sufficient "Leaf Area" to meet it's own needs (Leaf Area is the term used to describe the area of leaf exposed to the sun i.e. the top side of the leaf lying horizontally in the mat and both sides of the vertical leaf protruding out of the mat)

Mowing programme

From a purely botanical standpoint mowing is not only traumatic for the grass plant but also detrimental to turfgrass. There will be

- a) a temporary cessation of growth
- b) a temporary cessation of photosynthesis.
- c) the newly-cut leaves will not only allow fluids to escape but provide a portal of entry for hostile organisms.
- d) a temporary reduction in the absorption of water by the roots.

It must be said that the grasses we have selected for planting on our greens have been so selected because of their adaptation and tolerance to regular defoliation.

In order to control both the vertical growth and the lateral growth of the leaves we recognise two types of "mowing"

1 Horizontal Mowing - To control the height of the leaves growing vertically out of the mat for which we use the standard horizontally orientated mower.

2 Vertical Mowing - Vertical mowing is the term we use to describe the various procedures we employ to control or limit the growth and thickness of the mat (often called "thinning out" the mat). It is as much part of good greens management as horizontal mowing and, in fact, vertical mowing requires a higher level of competence from the GKP than horizontal mowing.

Regular Horizontal and Vertical mowing are essential if the GKP hopes to maintain the amount of grass on his green at a constant level.

Horizontal Mowing If the green is completely covered by a mat which is made up of a single grass and of uniform thickness then each grass plant will have sufficient "leaf Area" in the horizontal leaves to supply all it's energy needs and the photosynthetic capability of the vertical leaves becomes irrelevant.

On such a green the front and the back rollers are running on the mat and only cutting the vertical leaves protruding from the mat.

When adjusting the mowing height the GKP must bear in mind that the mower

will sink into the mat and the actual height of cut will be less than the mower setting. If the green is still wet after irrigation or rain this subsidence will be greater.

Over a perfect surface as described above the mowing height could safely be set at 3.5 mm.

Unfortunately there are few such surfaces in the RSA and a prudent GKP would be well advised to set the mowing height at 4.0 mm and higher after rain.

Many greens are not completely smooth and might inevitably have little “humps” and “hollows” which would lead to “scalping” when the mower runs over such an uneven surface. If the GKP persists in running the mower over these parts he will soon have an area where the growth is sparse.

Alternatively the mat might not be completely uniform in thickness – there might even be weak and bare areas eg mat wear or mower wear around the edges

If, for any reason the number of horizontal leaves is reduced to a level where they can not produce sufficient “food” for the grass plant then it will call on the vertical leaves to assist

Complete cessation of mowing over such an area is now imperative.

Note The grass plant would have some carbo-hydrate (CHO) stored in the roots for such an eventuality and would use this to supply the energy for the plant to send out vertical leaves to restore the supply of “food”. If the GKP continues to mow that area the stored CHO would soon become depleted and the plant will die.

Mowing should only be resumed when there is evidence that runners (Stolons) have appeared as a sign that the grass plant is producing CHO again.

Speed and Horizontal Mowing

Many bowlers over-estimate the influence the mowing height has on the speed of a green. Actually it is only 25 % with the “softness” of the soil base and the thickness of the mat accounting for 70 % - the other 5% depends on the rigidity of the leaf. Yet - there are members who encourage the GKP to “cut shorter so that the green can run faster” – often with disastrous results.

Setting the Horizontal Mower

Mowing quality is defined as “the appearance and playability of a bowling

green after mowing”. A well-known GKP once said” A Greens mower only cuts as well as it is set to cut” Thus, mowing quality is in part,

- a) a function of the sharpness of the cutting edges
- b) the proper adjustment of the cylinder blades against the bottom blade
- c) the proper height adjustments on both sides
- d) the gearing of the mower
- e) the number of blades on the reel
- f) the expertise of the operator.

While one assumes that the GKP ensures that the mower is well adjusted and set correctly a badly - adjusted mower with blunt blades will bruise or tear the leaves leaving a wide area of bruising on the leaves.

Such trauma will not only take longer to heal but the loss of fluid will be more extensive and the call on the carbo-hydrate reserves will be greater. In addition the green will; appear to be fluffy.

Vertical Mowing This is a much more complex process. An uncontrolled thick mat (often referred to as thatch), will, not only, affect the speed of the green but will also have poor water and nutrient holding properties, and might harbour fungi and insects which would necessitate the regular use of pesticides and fungicides.

A number of factors are responsible for the formation and thickness of the mat. It is not just a question of new leaf production but one must be aware of the characteristics of the Grass Specie or Cultivar (Inter-nodal length), the accumulation of undigested plant residues and other unwanted material.

Although the lateral growth is almost four times that of the vertical growth the photosynthetic capability of the horizontal leaves is restricted.

Once the green is completely covered by the mat and any further lateral spread is restricted the younger leaves tend to lie on top of the older leaves. .

The older leaves lying below the new leaves are cut off from sunlight and are no longer capable of any photosynthetic activity. They turn brown and although

still attached to the stem are of no use to the grass plant **but the mat is thicker.**

Thinning Out - Three Components.

- Removal of loose superfluous material lying in the mat – this will not affect the leaf area in any way but will speed up the green and the grass will be healthier.
- Removal of the attached brown live leaves lying below the emerging leaves
- Removal of live green leaves – if necessary.

Equipment We use vertically orientated equipment eg Verticut, Groomer, Pin Scarifier, Teaser Comb, Brush. Each of these have their own function but probably the most versatile would be the Verticut and the Brush.

The principle behind vertical mowing is –

- To ensure that there is no superfluous material in the mat
- To remove excess live leaves if there is a need for it.
- To encourage the establishment of many smaller grass plants.

Whenever the GKP uses vertical mowing equipment he must look in the bin to see what is being removed. Ideally the contents should be brown with only an occasional green leaf unless he deliberately wants to remove live leaves.

The Size of the Grass Plant It is always preferable to have a number of small grass plants instead of one large one. A fungal or bacterial infection in a small plant is easier to handle than one in a larger plant. When a stolon is divided a new grass plant – independent of the parent plant - will develop on the distal side of the division. The GKP should encourage this by regular Verticutting with (if possible) sharpened blades dividing the runners (or stolons) on

the surface of the green. This would limit the size of the plants.

Heinz Greens Maintaining a mat where the GKP is only dealing with one variety of grass is relatively easy. But – when he is dealing with a mat where there are a number of different varieties - each with its own texture – then the GKP would have a real problem producing a mat which is even throughout.

The intensity of the “thinning out” process would have to be limited to that of the weakest strain leaving the stronger strains to establish thicker mats.

The GKP could try to counter this by regularly verticutting and more intense fertilising to encouraging the weaker strain to “fine up” which would result in a thicker mat.

Unfortunately the majority of our greens are Heinz greens.

Outcome

1 The GKP has enough expertise to ensure that the thickness of the mat is constant by removing as much grass as is being produced

2 The conservative GKP would remove less than is being produced and by the end of the season will have a thicker mat and a slower green. Luckily by vigorous scarifying at renovation time he will remove **all** the previous year’s growth and start with a bare surface.

3 The adventurous GKP is the one who flirts with disaster. He would -

- Reduce the mowing height indiscriminately
- “Thin out” the green so vigorously that weakened grass is no longer able to maintain a mat.
- Continues to mow weak and bare areas.

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SUMMARY

Grass Clippings 30 reminds the Green keeper (GKP) of the importance of controlling both the vertical and the lateral growth of the grass plant. The proliferation of the mat is often neglected in comparison with the apparent urgent need to curb the vertical growth which is so obvious..

The equipment used and the need to ensure that the various adjustments are done meticulously is also stressed.

The GKP is reminded of the need to desist from all interference when a weak or bare area develops on the green.

No GKP can, for a single day, afford to ignore the growth of the grass and while the members will be quick to remind him that he has not mown the green he will have to remind himself that the mat is also getting thicker.