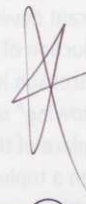


Bank on Microbes to Minimise your Thatch Account

Hugh Frost advises you look after the microbial population in your soil, so they will assist you with your thatch control.



The role of soil microbes (bacteria) in turf grass management is discussed, outlining why they should not be ignored and also how they can be managed to keep a thatch layer under control.

THE THATCH BANK

In some respects, the thatch layer in turf grass is like a current bank account. You need to keep the balance to a minimum, as you get no interest in letting it get too large - tying up resources in the wrong place. On the other hand, if it is too small, then you have no buffer against larger withdrawals from the system.

Of course this analogy only works so far, but essentially thatch accumulation has incomings and outgoings, the same as a current bank account and to attain a problem-free life, these components need to be kept in equilibrium.



So what are the contributing factors to thatch income and outgoings?

Thatch Income: Plant growth (particularly the heavily lignified plant components).

While thatch formation is generally attributed to excessive nutrient and water applications, perhaps in recent years too much emphasis has been paid to the total quantity of fertiliser and irrigation, rather than the types and timing of these two inputs.

Grass has to grow and it requires fertiliser to achieve the performance expected from a modern-day golf course. However, if fertilisers are applied too heavily, especially those that decrease pH, not only do they produce excessive plant growth, they can result in a reduction of soil microbial life. These soil microbes are both responsible for efficient uptake of plant nutrients and also play an integral part in plant residue breakdown, therefore thatch reduction.

Similarly, irrigation is obviously vital to high quality fine turf, though once again, if over applied can produce excessive growth. More importantly, poorly timed irrigation can cause the soil to stay in a continuous state of saturation which will block soil pores that take vital

oxygen to plants and microbes.

Any reduction in soil microbial activity will lead to a decrease in thatch breakdown.

Thatch Outgoings: Continuous microbial activity, assisted by regular aeration, will result in an infrequent need for thatch reduction remedies.

There are two categories of thatch reduction; preventative and curative. In the medium to long-term, preventative is easier and far more cost efficient. Therefore priorities should be:

1. Continuous preventative thatch formation by: Microbial activity (see below for advice)
2. Regular preventative thatch formation: Aeration and verticutting
3. Infrequent thatch curatives by: Mechanical removal & use of "thatch eater" products

PREVENTATIVE: Encouraging The Microbial Workforce

Golf course greens can be a sterile and unwelcoming environment for beneficial microbial life, though unfortunately it seems that the undesirable pathogens flourish all too easily. This is partially due to the fact that the beneficial microbes, which compete with these pathogens, have been neglected and unnecessarily lost by over application of a range of inputs which scour the soil profile of microbial life.

So, it is important to make sure that, even in an artificial plant growing environment such as a USGA spec golf green, there is a level of microbial activity that promotes the breakdown of decaying plant material. The process by which microbes are able to reduce the organic matter is by means of enzyme production and this process is largely determined by temperature, moisture and food availability. Therefore when soil temperatures are around 10+ °C, usually from mid-spring, this is when it is vital to seize the opportunity to encourage microbes to work on the thatch on your behalf, without any disruption to play.

The course of action that will be most beneficial to thatch control will be:

- Firstly, look after the microbes that already exist in the soil. This should be done by:
- a. Regular (and frequent) aeration of the root zone (to provide both oxygen and good drainage)
 - b. Avoid using fertiliser that will significantly decrease pH
 - c. Add a feed that will sustain microbial populations (see below for more details)
 - d. Verticut turf in the growing season (aerates and aids microbial action)

Secondly, take every opportunity to supplement microbial populations.

A fertiliser with an organic, rather than a mineral, base can be used to inoculate soils with short-term populations of microbes that cannot only assist in thatch breakdown but allow fertilisers to function more effectively.

Good quality biological fertilisers will not significantly alter the organic matter profile of a rooting zone. This is because they contain organic

nutrients that are readily available to the grass plants and do not utilise slowly degradable organic matter, which would disrupt the root zone profiles. To this organic base of fertiliser can be added extra microbes, which will both make the nutrient content of the fertiliser more available and slowly convert existing decaying plants to new plant food.

Should thatch already be a problem, then a curative course of action should be:

1. Identify and start to remedy the cause(s) of the problem (usually too little aeration, low microbial life)
2. When appropriate, remove thatch by mechanical means, using scarification
3. Apply curative products that will speed up the microbial action on the thatch layer (see below)

CURATIVE: Rapid Microbial Digestion and other practices

While scarification is commonly carried out and is highly beneficial where it can be practiced, greenkeepers are naturally attracted by products that seek to work on the breakdown of thatch. Generally speaking these products are granular in nature and work in a similar fashion to microbially-enhanced fertilisers. However, while some will only feed existing populations of microbes already in the soil, others will provide greater benefit by adding higher concentrations of microbes. This latter category of highly concentrated products, which significantly speed up thatch degradation, are most effective and well formulated liquid products that can provide an even more rapid action.

To cure the problem of thatch it is important that any "thatch-eater" product produces a high microbial enzyme action, if it is able to get straight to the heart of the problem. Although a microbial fertiliser will



keep the income of thatch to a minimum, to create significant outgoings from an existing thatch bank, a far greater intensity of digestion is required.

A liquid product will penetrate the top of the turf and get into the dark recesses of the thatch within seconds of application. If this liquid then contains, not only the high quantity of microbes required for rapid action but also enzymes themselves, the product will

start to work immediately. Of course the liquid formulation has the additional benefit of providing the moisture that microbes require, without the risk of over-irrigating granular products into the sward.

CONCLUSIONS

- Prevent incoming thatch by promoting conditions beneficial to microbial soil activities
- Fully utilise all mechanical aeration practices to enhance natural thatch breakdown
- Apply microbial amendments in either preventative or curative forms as appropriate

If you generate and enhance your own microbial population, this will keep your thatch bank account in a lean and healthy condition, which will pay dividends in the future.

*Hugh Frost, UK Technical Manager, Novozymes Biologicals.
Tel: 01789 290906.*

Something worth celebrating...

...competitive car hire rates, exclusively for you.

As the **British & International Golf Greenkeepers Association** are one of **National Car Rental's** most valued business customers, we would like to introduce you to **Affinity Leisure Programme**, our new leisure car rental programme, designed especially for you.

Affinity Leisure Programme enables you to benefit from great deals when renting in your own personal leisure time, whether it's for holidays abroad, short breaks away, special occasions or even when your car is off the road.

Affinity Leisure Programme offers all **British & International Golf Greenkeepers Association** members exclusive and preferential rates on car and van hire in the UK and on international car hire in over 80 countries worldwide - including all the major holiday destinations. Members can also enjoy the luxury of the **Guy Salmon** fleet in the UK from a Mercedes to the power of a Porsche at surprisingly affordable prices.

We want to offer you the best rate on the day, so we will be continually price shopping **Affinity Leisure Programme** rates against the competition. To ensure you always benefit from great rates, they will change regularly and therefore will not be published.

For a **National** car or van quotation or to make a booking please call:
0870 191 6950

To benefit from these exclusive rates make sure you quote:
A099084 for UK Car Hire
A099085 for UK Van Hire
8573290 for International Car Hire

For a **Guy Salmon** prestige car quotation or to make a booking please call:
0870 191 6984 and quote account number **A099084G**

GUY SALMON PRESTIGE RENTAL **National**

Terms and conditions apply. All Affinity Leisure Programme rentals are subject to National Car Rental's standard terms and conditions, driver qualification and availability. The minimum rental periods are: UK, 1 day; International, 3 days, which must include a Saturday. Advance booking is required and payment must be made at the rental location, with a credit or debit card.



CAR RENTAL

BIGGA members have been enrolled in **National's Affinity Leisure Programme**, which enables you to benefit from great deals when renting cars and vans in your own leisure time.

The programme offers all **BIGGA** members exclusive and preferential rates on car and van hire in the UK and on international car hire in over 80 countries worldwide. You can also enjoy the luxury of the **Guy Salmon** fleet in the UK from a Mercedes to a Porsche at surprisingly affordable prices.

Affinity Leisure Programme continually check their rates against other companies to ensure you are offered competitive rates.

For a National car or van quotation or to make a booking please call 0870 191 6950

To benefit from these exclusive rates please quote:

- A099084 for UK Car Hire
- A099085 for UK Van Hire
- 8573290 for International Car Hire

For a Guy Salmon prestige car quotation or to make a booking please call: 0870 191 6984 and quote A099084G