

In the first of a two-part article, Peter Jefford and Mick Higgins of Rufford, talk about the benefits of top dressings and the importance of testing in order to establish compatibility with the existing rootzone

TESTING TIMES



Above. Peter Jefford, a well known face in the industry

Below. Particle size is of key importance

A frustratingly unpredictable climate, economic pressures and increasing numbers of players all demanding perfect playing conditions seven days a week, 52 weeks of the year. It's all a far cry from the challenges faced by greenkeepers 30 years ago and leaves today's successors nursing some major headaches.

Establishing consistency and quality in such a fast changing industry is the key to creating successful greens - and that is all about testing.

Definition

Before we go any further, let's stop and consider exactly what we mean by the term topdressings and why they play an essential role for greenkeepers today.

A farmer would interpret topdressing to mean the surface application of fertiliser (usually nitrogen) to a grow-

ing crop. However in the turfgrass industry the term topdressing is used almost exclusively to describe the surface application of sand, soil, organic material or any combination of these.

So why are topdressings necessary? We all know that long-term maintenance of high quality fine turf on golf and bowling greens is extremely difficult, especially given the factors mentioned in the opening paragraph. Greens only account for a very small percentage of the total surface area of a golf course - but every single player ultimately ends up there, resulting in a frightening rate of concentrated foot traffic.

However, frequent application of an appropriate topdressing will assist a greenkeeper greatly by providing the following benefits:

1. It helps maintain a smooth, true running surface which in turn improves mowing efficiency
2. In conjunction with scarification, it will avoid thatch build-up
3. Enables you to control organic matter content, water infiltration and aeration
4. It's essential in maintaining or increasing rootzone depth
5. Improves germination on over-seeded areas
6. Improves or sustains appropriate soil texture

But you must remember that topdressings add to and become part of the rootzone. Over a period of years topdressings will either alter or sustain the physical (and to some extent biological) properties of rootzones. That's why it's essential to test and establish a green's existing profile before you can select and apply an appropriate topdressing.

Compatibility

You can't take a 'one-size-fits-all' approach when it comes to applying topdressings. Because they eventually become part of the rootzone they

logically need to have similar composition and properties. For the majority of golf greens this means a particle size composition dominant in medium sand. But this is only a general guide - it's still essential to use a topdressing that's compatible with your existing rootzone. If you don't then you could be in trouble.

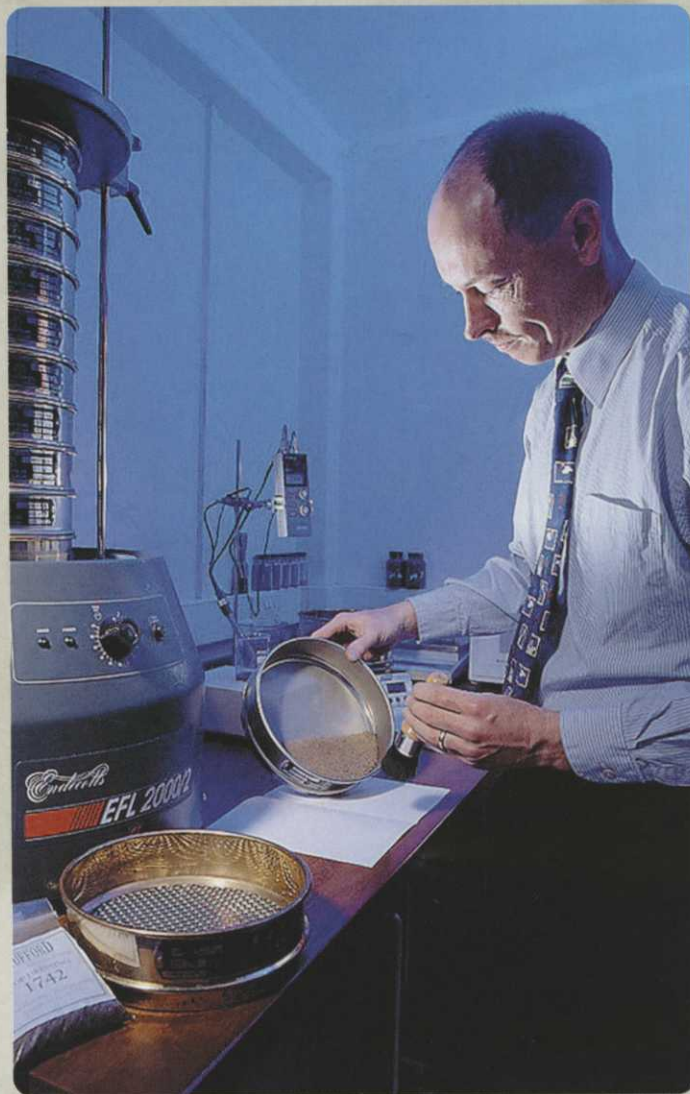
There's no way that a topdressing supplier can claim that they have a good product for you without first of all testing your greens. That's because there's no such thing as a universally 'good' topdressing - what might be right for one course could be completely wrong for another because applying a mismatched topdressing can cause major layering problems to the rootzone profile. A major risk is the creation of layers of different pore size systems within shallow depths of the rootzone. If this happens then water retention and air/water balance will be affected and also rooting depth. The frightening fact is that this problem won't become apparent for several years, by which time it may be impossible to rectify through cultivation techniques.

Guesswork

It's so frustrating when people cut corners through either cost constraints or lack of awareness, because they end up undoing the years of work that have gone before them to create a great green. It doesn't have to be guesswork when it comes to determining the compatibility of a topdressing and a rootzone - it's not a blind date! The only answer is to test. And that's what we've built the Rufford business on.

To illustrate this in practical terms we'll take a specific example of one of our customers. By testing we were able to establish that their greens contained a lot of fine material with around 40% or more in particles smaller than 250 µm.





At the time, the greenkeeper's topdressing was predominantly in the medium band but contained over 30% in the coarse band, three to six diameters greater than the dominant fine sand in the rootzone. Hence the fine sand in the soil was interpacking with the coarse sand in the top dressing, thereby reducing total porosity and thus the efficiency of its effect in improving the physical characteristics of the rootzone.

This information enabled us to recommend a topdressing through which to reinforce the dominant useful sand grades in the rootzone (ie fine and medium sand) thereby arriving at a solution with a medium particle diameter of around 280µm, of uniform particle size (D90/D10 less than 3) and with virtually all particles in the fine and medium sand ranges.

The Testing Process Explained

Our whole testing process starts with a visit to the club. We usually take samples from three greens (a good one, poor and average) using a

core sampler which takes a plug from the top 100mm of the profile. Other information is determined at the same time, for example the depth of the rootzone, any layering present and also the character of the soil or permeable material beneath the rootzone.

The samples are then sealed and sent over to our in-house Minerals Development Centre, at Oakamoor, in Staffordshire, for analysis. Tests are carried out here to determine particle size distribution, pH and organic matter content.

We then take these results and feed them into our computer software. This in turn produces a full analysis that includes, amongst other elements:

- Particle size distribution on full and half octave sieve sizes
- D values which can be used to calculate the gradation index (D90/D10) or used to ensure bridging characteristics with suitable gravels
- Effective particle size (D_{eff})

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Above. A scene witnessed regularly on golf courses everywhere

Below. Testing begins with a 100mm core from three greens.

We can then use this information to identify a top-dressing from our range that either matches a good rootzone or improves a poor one.

The 70:30 myth

People who just ask for a 70:30 sand/soil mix in their topdressing (or

any other ratio for that matter) don't realise what lottery punters they are. This specification tells you nothing about the quality of the sand in terms of lime content, grading and conductivity, nor anything about the soil which could range from peat-based to a heavy clay content.

A purchaser should be able to request the precise analysis of the topdressing in terms of: particle size; amount of silt/clay; organic matter content and lime.

Feeling the Heat

Another important point to mention is that any topdressing you buy should be heat-treated. If it's too wet or damp then it tends to clog together or simply lies on the surface making an even application impossible. Not to mention the fact that if your topdressing is wet then you're effectively paying your supplier for water!

In terms of applying topdressing, frequent light applications are always advisable wherever practical. This enables fast integration, prevents

layering and avoids smothering grass in spring or autumn when growth is slow. It's become common practice to apply four to six topdressings of 0.5 - 1 kilogram/m² (1 - 2 lb/sq yd) during the growing season. Such amounts can be applied quickly and brushed in - you can therefore avoid significant disruption to play!

Confident

We can confidently say that our approach has produced positive results for golf and bowling clubs throughout the UK. In fact we're so confident in the benefits of testing that we frequently give talks and lectures about it at colleges, universities, golf clubs and branch meetings of professional bodies including BIGGA and the IOG.

After all, you don't get to establish long-term relationships with the likes of Wentworth, Sunningdale and Royal Birkdale on guesswork!

Peter Jefford is Rufford's General Manager, while Mick Higgins is QA and Technical Manager. Rufford has been supplying topdressings, rootzones and a full range of complementary products to the sports turf industry since 1987. You can find more information and technical advice at www.rufford.com telephoning 01477 572462.

We will be featuring another article from Mick and Peter about rootzones later in the year.

