

by Dr David Lawson, soil chemist, STRI, Bingley

Through education, word of mouth and personal experience (good and bad), greenkeepers are becoming more discerning in their use of fertilisers. All greenkeepers know that you can't simply apply any old fertiliser product at any time of the year and expect to obtain a top quality turf surface. However, there are a number of questions which are still frequently asked by greenkeepers and a selection of these are summarised below, along with some questions which perhaps greenkeepers *should* be asking about fertiliser products.

How much fertiliser is needed on the golf green?

There is an immensely wide range in the requirement for nitrogen fertiliser on golf green turf. On older courses with green rootzones constructed from the indigenous loam soil, the fertiliser demand is relatively low. In some cases 8 g/m² of nitrogen (N) applied each year is adequate. This would be provided from a 8:0:0 fertiliser applied at 50 g/m² twice during the growing season. In most soil-based greens however, the nitrogen requirement is about twice that shown above so that the 8:0:0 product would be applied on four occasions during the growing season.

On recently constructed greens where the physical properties of the soil have been improved by the addition of sand the requirement for fertiliser N is substantially increased and will range from 20-30 g/m² of N each year. The actual amount applied will depend on the amount of soil present and the length of growing season.

As to whether other nutrients such as phosphate, potassium, magnesium or trace elements need to be applied depends on soil tests. However, as a general rule most soil rootzones have no need for any fertiliser nutrient other than nitrogen and it is only on sand-dominated rootzones that there need be any concern about other nutrients especially with regard to magnesium and trace elements.

If soil tests do indeed show a

nutrient such as phosphate to be insufficient for fine turf growth then the amounts required in fertiliser to rectify the situation are small. For instance phosphate deficiency can be prevented by the application of 2 g/m² phosphate (as P205) in a single dressing. This would be adequate for at least one year.

Should fairways be fertilised?

In the majority of cases there is no need for regular applications of fertiliser to fairways. No greenkeeper wants to be mowing the fairways every couple of days. Regular applications of fertiliser will also lead to a change in the botanical composition of the fairway turf. Along with an increase in annual meadow-grass content, agricultural grasses such as perennial ryegrass will start to dominate the sward. Moreover lush growth will reduce the "run on" normally obtained from drives.

However, there may be cases in spring where growth does appear to be particularly weak and cover becomes thin. In such situations a one off fertiliser application will be of benefit. On tee walk off areas and green approaches where there is heavy wear it is advisable to apply a single spring nitrogen dressing each year.

What about the tees?

If constructed from the same rootzone material to the greens, the tees should receive similar

amounts of fertiliser.

Does the type of fertiliser used make any difference to turf quality?

Yes. The type of nitrogen used will have a major effect on many aspects of turf quality. There is no doubt that ammonium sulphate is the best nitrogen source for fine turf and should make up at least part of the fertiliser nitrogen. However, its continual use on sand-dominated rootzones will lead to over acidification and so other less acidifying materials should also be used. Such materials include liquid nitrogen fertilisers, most slow release sources and organic fertilisers such as hoof and horn meal.

Where fertiliser is applied infrequently (eg. fairways and surrounds) the form of nitrogen fertiliser used is not so important.

So what is so special about ammonium sulphate?

It has been known for decades that ammonium sulphate as the main nitrogen source will reduce disease, weeds (including annual meadow-grass) and discourage earthworm activity. No other nitrogen source (apart from ammonium phosphate) has been shown to have the same beneficial effects.

It is certainly worth asking the fertiliser rep what the nitrogen in his product range is derived from.

With the hammering courses

take during the winter is there a need nowadays to be applying autumn-winter feeds?

Certainly golf is now played all year round, often under the most severe growing conditions and the turf must be able to recover. However, turf growing on unameliorated soil receives enough nitrogen from the soil's natural reserves during autumn and winter so that there is no need to be applying any more. On sand dominated rootzones it is often advisable to apply two or three small doses of nitrogen during mild spells. It is advisable to apply no more than 2 g/m² of N at this time of year and a useful way of applying such small amounts evenly is through liquid fertilisers. Alternatively a granular product with a low N analysis can be applied.

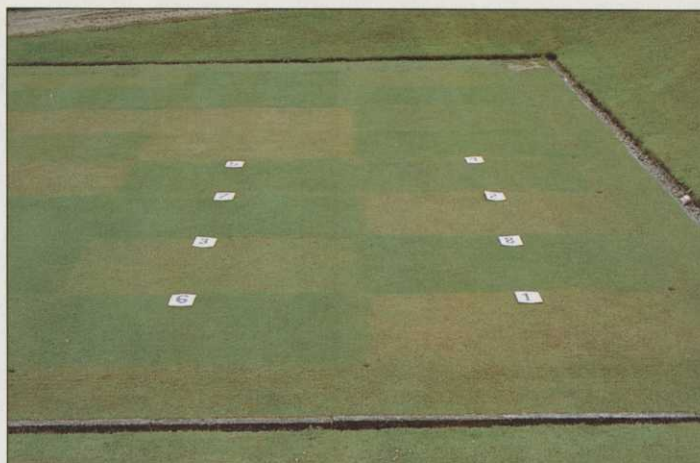
What about all these slow release nitrogen fertilisers?

There is no doubt that many of the products on the market do have a good long term release ability. For this reason they may be useful as a part of an overall fertiliser programme but, used alone, some products may have a detrimental effect on turf quality compared with ammonium sulphate-based products. This has in fact shown to be the case with the IBDU and ureaform types of slow release nitrogen. However, these products can be used successfully (as can the coated

Question time for FERTILISERS

FERTILISERS

Check this out:
Fertiliser trials
at the STRI in
Bingley



forms) on less intensively managed areas such as surrounds. They are also extremely useful as nitrogen sources for seed beds and turf beds.

Is it possible to supply enough nitrogen to turf from liquid

fertiliser?

Yes, it can be done but it depends very much on the individual product and just how much nitrogen it contains. They are more usefully employed as part of a fertiliser programme where most of the nitrogen is supplied

through solids with a high ammonium sulphate component.

Many fertilisers contain magnesium. Is there really any need for it?

Most rootzones, including those with a high sand content, contain more than enough magnesium for fine fescue bent turf. Visible symptoms of magnesium deficiency in grasses are rarely, if ever, seen. Unfortunately there has been a scare over the apparently low concentrations of magnesium found in some golf green soils. The soil tests used are primarily based on agricultural situations and are not strictly relevant to golf turf. However, application of magnesium will not cause any harm to the turf.

In greens with very high levels of soil phosphate what is the best way of producing a decrease in the concentration?

Many of the older golf courses do have exceedingly high concentrations of soil phosphate in the greens. The reason for trying to reduce the concentration is the relationship between phosphate and annual meadow-grass ingress in the turf. This is not a particularly important factor in the invasion of meadow-grass and there is certainly no need to take panic measures to try and "be rid of"

the phosphate. So long as it does not necessitate a major change in the management programme a few tips may be useful in reducing the level of available phosphate.

Firstly, don't apply phosphate-containing fertiliser.

Secondly, if the soil is not already acidic use an acidifying fertiliser (ie. containing ammonium sulphate). In acid soil conditions a significant proportion of the soil phosphate becomes "locked up" and made unavailable to the turfgrasses.

Thirdly, apply iron. The iron forms insoluble compounds with the phosphate again making it unavailable to the turf.

Lastly, if possible use a top dressing material which is very low in its phosphate content. Remember that as far as annual meadow-grass establishment is concerned the surface of the soil (or thatch) is of most significance. If the concentration of phosphate here is kept to a minimum then seedling establishment can be reduced. This can be achieved over time by the regular application of a low phosphate top dressing material. Indeed after a number of years a rootzone will be established with very little phosphate at the surface, but with adequate reserves at depth for the requirements of the fescues and bents.

Exclusive GOLF ENCLOSURES



from Stableford Enterprises

The Ultimate in Driving Range enclosures.

Attractive natural timber finish compliments any landscape.

Workshop manufactured, minimum on-site disruption.



For further details please contact:
Martin Brunton

**Stableford
Enterprises**

24 Mulnavoo Road,
Draperstown. BT45 7LR

Tel: 01648 27021

Fax: 01648 27335

**Britain's
leading
Top Dressing
supplies**

All Seasons Dressings

**Top Dressings • Sands • Top Soils • Fern Soil.
Suppliers of Soils for Golf Courses.**

TOP DRESSING
Grade 1, 2, 3 to a
high specification

ROOT ZONE MIX
Individual mixes
USGA
specification,
Lime free sands
used

SCREENED SOIL
3mm and 6mm
Screened soil for
divoting and
construction.
Naturally organic

SANDS
Free draining,
Lime free sands
for bunkers and
top dressings

CONSTRUCTION
Tee and Green
construction
undertaken by our
own professional
tradesmen



We at ALL SEASONS DRESSINGS have researched long and hard to achieve a Top Dressing to a very high quality product. All our soils and sands are tested by local agronomists and chemists to obtain the best results for your greens and tees.

**119 London Road, Kingston upon Thames, Surrey KT2 6NH.
Telephone: 081 546 3960 • Mobile: 0831 871939 • Fax: 081 547 1923**