



BRITISH GRASSLAND SOCIETY

Using Fertiliser Efficiently

Spring 2011

With ammonium nitrate fertiliser costing more than £300/t, we asked some of our BGS Council and R&D Committee members to offer some timely tips on using fertiliser economically

Target applications

I believe in using fertiliser as a tool to grow grass when it is needed, by measuring grass growth and applying it when appropriate to grow the grass I need. This in conjunction with clover can provide enough grass with significantly reduced N inputs. *Dave Lee, BGS R&D Committee and dairy farmer*

Mind your Ps & Ks

Reducing nitrogen applications can be a risky strategy, because you don't usually want less forage (silage or grazing). It's more likely that cost savings can be made by spending a few pounds on soil testing, so you can make a fertiliser plan based on field requirements.

Then you can target P and K applications, balancing field requirements with slurry and manures where possible and only resorting to bagged products and compounds if they are really needed.

The last issue of Grass and Forage Farmer highlighted that indexes are already above 2 for P on 44% of soils tested and for K its was 29%, with a further 29% at 2 for P and 45% at 2 for K. Oh, and don't forget the pH of the soil. *Tony Evans, BGS President and Andersons*

Optimum soil pH

Grass clover swards should be maintained between 6-6.5, so below this apply lime. Acid soils have poor grass and clover production, few earthworms and favour weed grasses of poor quality and quantity.

Soil samples should be taken to 10cm (4in) depth and test for P and K at the same time. To prevent trace element lock up do not apply more than 2.4t/ha at once and check the neutralising value (NV) of liming products, as a higher price per tonne with a high NV may well work out best value. *Piers Badnell, BGS Trustee and DairyCo*

Focus on manure value

Organic manures can supply a large proportion of the N required - a standard 6% DM dairy slurry spread in spring at 36m³/ha (3200 gal/acre) will supply 42kg of N/ha, worth £40/ha, based on a 45% availability. But beware of supplying excess potash which will result in luxury uptake on grazing ground.

Application method can also have a significant impact on the percentage of N available. Injecting slurry in the spring will increase N availability by 10% compared with surface application, using the figures in the table below the increase in available N is worth £9/ha (£3.60/acre).

Does this cover the additional application costs? Injecting typically costs an extra £16/ha (£6.40/acre) – less than the benefit!

However, injecting slurry does have additional benefits, such as allowing stock to graze swards sooner and improved grass growth by placing nutrients closer to the grass roots. *Richard Simpson, BGS R&D Committee and Kingshay*

Nitrogen Availability (RB209)			
Application		Surface	Injection
Dirty water	<1% DM	50%	50%
Slurry	2% DM	45%	55%
Slurry	4%	35%	45%
Slurry	6%	25%	35%

Boost yields with sulphur

Make the most of purchased fertiliser by ensuring the grass has all the nutrients it needs. Almost everywhere this means using sulphur to gain yield and quality benefits and improve N use efficiency.

The IGER work from the late 1990's showed impressive yield increases, with improved protein and sugar levels and reduced environmental losses, particularly on lighter soils, but recent trials suggest the effects are now likely to be much more widespread, as atmospheric sulphur declines to tiny levels. It's critical on grass for cutting and good on grazing. *Elaine Jewkes, BGS Trustee and GrowHow UK*

Continued overleaf.....

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Consider N responses

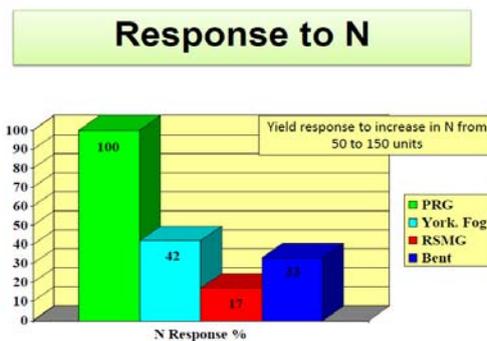
The response to nitrogen varies with different grass species, so checking sward species and maintaining a high percentage of perennial ryegrass in your swards will maximise the use of nitrogen (see bar chart). *Helen Mathieu, BGS Trustee and British Seed Houses*

Carefully consider urea

If the ammonium nitrate (AN) price is high, could urea be better value? The normal N contents of urea and AN are 46% and 34.5%, respectively. So you can work out the relative value of each product per kg of nitrogen.

But, while urea can often appear to be cheaper, beware – recent studies from ADAS, SAC and North Wyke show N losses through volatilisation from urea applied in spring and over the season can be over 20% compared with AN at less than 3%. At these kind of losses, AN will probably work out cheaper than urea and the N loss is environmentally less damaging.

However, N losses from urea are kept to a minimum when applied to moist, neutral pH soils and where there is light rain within 36 hours of application. So think before you buy – if you can be confident in your application timing and conditions, then urea is a prospect; if not AN is the safer option. *George Fisher, BGS R&D Committee Secretary*



Source: Welsh Plant Breeding Station

Try some red clover

We, as organic farmers, find red clover a great alternative for bagged nitrogen on our silage swards. It can be established by shallow drilling or broadcasting in whole-crop and in early autumn reseeds. It generally lasts three years, often as a mixture with high sugar ryegrass which aids silage fermentation.

We aim for three cuts with autumn grazing, but NOT too severely as the growing tip can be damaged. Bales made from it have 16%+ crude protein. It has a deep tap root which improves soil structure and is drought tolerant.

But to avoid clover pests and diseases, please take advice on crop rotations. *John Downes, BGS President Elect and organic farmer*

Calibrate the fertiliser spreader

We were taught it at college, but in busy farm life it's easy to let this job sink down the list until the weather is right and you want to be out spreading. But we know all products vary a little and to ensure this valuable commodity is really going where you want it, running some of this season's product through to check the calibration and spread pattern has got to be time well spent. *Jess Buss, BGS society director*

Be wary of cutting back

Remember grazing is a quarter of the costs of concentrate, so be wary of reducing rates because every £1000 you save on fertiliser will likely see you spend £2000 on concentrates.

But remember to get your inputs in the right order, lime being the most important, then P and K.

Get these right and you will be able to make the most of the nitrogen you put on and you will also be providing a good environment for clover to thrive. *Charlie Morgan, Secretary of the Federation of Welsh Grassland Societies*



Keen to improve your grassland management?

— join us at one of our 2011 technical events

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| Apr 12th | BGS, RABDF, DairyCo Milking Grass for Profit farm walk hosted by Rhys James, Haverfordwest, south Wales |
| Apr 28th | BGS, RABDF, DairyCo Milking Grass for Profit farm walk hosted by Chris Stockdale, Allerston, North Yorks |
| May 5th | Reseeding Day and Launch of the 2011 Recommended Grass and Clover Lists, at Duchy College, Cornwall, organised by BGS, EBLEX, DairyCo, HCC, NIAB and BSPB |
| June 23rd | BGS Grassland National Management Competition winner's farm walk hosted by Steve Brandon, Stafford |
| July 3rd-6th | BGS Summer Meeting hosted by Somerset, Devon and North Devon Grassland Societies |
| Sept 20th-21st | BGS 10th Research Conference, Belfast, |
| Nov 17th | LIC-BGS Pasture to Profit Conference, Worcester |

More information on all these events is available on www.britishgrassland.com