

Improving Fertiliser Usage

Woodhead
Climate Change Focus
Farm

*Notes from the meeting
on 25 February 2016*

This is the sixth meeting of the Woodhead focus farm discussion group. This meeting considered strategies to make the best use of slurry, manure and purchased fertiliser.

Key points:

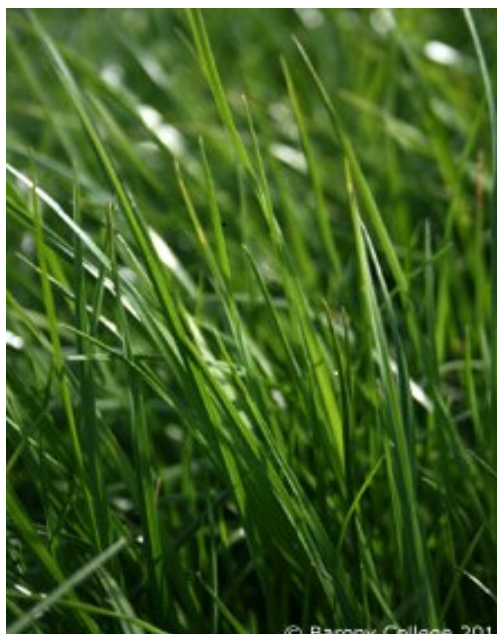
- Soil sample to identify where lime or additional nutrients are needed or where a P or K 'holiday' could be taken.
- Analyse slurry and FYM—there is big variation.
- Consider using fast-acting bagged lime on seasonal lets but it is expensive for routine use.
- Use PLANET Scotland or SAC Technical Notes to calculate crop fertiliser requirements.

Cutting inputs—an attractive option for many dairy farms this year.

With cuts to the milk price, many businesses are considering how to make the best use of inputs and reduce costs for the coming year.

The recent Focus Farm meeting held at Auchincruive looked at how farmers could make best use of slurry and manures and bought in fertilisers to improve grassland efficiency, without jeopardising long term production.

The session was led by Robert Ramsay and Chloe McCulloch, SAC Consulting. Chloe explained that farmers should focus on getting the basics right first and that this means having the correct conditions for grass and crops to thrive — whilst farmers may need to apply more lime they would benefit from more efficient use of fertilisers. For some farms, it could be feasible to reduce applications of nitrogen, phosphate and potassium which will help business cashflow this summer.



Maximising the value of slurry is also important, with Robert demonstrating how to calculate the nutrient content of a typical application of slurry and what this means in cash terms when comparing with bought in fertiliser.

The next meeting is a visit to Barony College on Tuesday 8th March where we will look at grassland management and how technology is improving efficiency. All farmers welcome.

Focus on...

Soil pH

Adequate soil pH is a crucial requirement of any crop - no less important in grass.

In low pH conditions useful elements such as phosphate and potassium are less available - whilst those potentially toxic to the plant such as aluminium become more readily available.

Some plants are more able to tolerate these conditions, for example barley is less susceptible to aluminium toxicity than wheat, but yields of all crops, including grass, will be better if it is grown at minimum pH 6.0.

Target soil pH:

- Intensive Grassland: 6.0 - 6.2
- Arable: 6.2
- Extensive Grassland: 5.8 - 6.0

There is no benefit from increasing pH above 6.4 - above this there is potential to create trace element deficiencies. These will have greatest impact on arable cropping.

Plants (and farmers) rely heavily on soil micro-organisms to break down organic matter (such as slurry) into a useable form. These 'bugs' prefer less acidic conditions (>pH 6.0).

Availability of nitrogen, phosphate and potassium is all significantly better at pH 6.0 versus pH 5.5.

Maintaining the correct soil pH will help you to get the most benefit from expensive purchased fertilisers.



Get the best performance from reseeds

New seed varieties which are included in the intensive ryegrass mixtures have all been tested in the 'correct' conditions, i.e. pH >6.0.

New reseeds may not perform as expected in acidic soils.

What type of lime?

The members of the group had applied several different types of lime. Historically it was common to apply **magnesian lime**, and consequently many fields have high or very high magnesium levels. In these circumstances it is better to now apply **calcium lime**.

Ground calcium limestone is the most common form of lime used locally. Normally the only real differences between the material from one source and another is the size of the particles. The smaller the particles the more quickly the material will work. Application rates of 1—2 tonnes/acre are typical.

Some farmers used **prilled** or '**bagged**' lime. This is essentially just limestone which is ground into a very fine dust before being prilled. It is expensive but very fast acting (within a few weeks usually). It's main

role is to allow cropping in a field which needs to be planted before ground limestone would have time to work. It may also have uses on short term lets. It typically has no better liming value than ground limestone however, and you will require the same tonnage over a long time period. This makes it an expensive way of routinely managing pH - better to soil sample and lime 12 months before ploughing instead.

Gypsum (or waste plasterboard) **is not a liming material.**

Liming Tips

- Don't apply more than 2 tonnes in one application
- Allow a full 12 months for lime to work - sample and lime the year before you plan to plough the field.
- Avoid repeated use of prilled lime except on short term lets.

Instead of sampling a few fields each year consider soil sampling the whole farm every 4 to 5 years. You will then be able to plan lime application in advance and avoid needing to use more expensive but faster acting products.

What is a P & K Holiday?

Where soil P and K levels have been built up to High or Very High then reducing or even stopping input of purchased P or K is a real possibility. However the decision must be backed up by soil analysis and a fertiliser calculation, either by PLANET Scotland or using SAC Technical Notes.

Often where soil P and K levels are moderate farmers can reasonably expect to reduce, or even stop entirely, bagged P and K applications. But this can only be done when you know the nutrient status of the field, and how good your slurry

Slurry is an excellent Fertiliser!

Slurry is an excellent source of N, P and K but many farmers still do not fully account for it when calculating fertiliser requirements.

There is wide variability in both the dry matter and nutrient content between farms and even individual tanks on a single unit, however dairy slurries are generally relatively nutrient dense.

Get slurry sampled - you will find out how many kg of N, P and K is in a typical application (e.g. 2,000 gal/acre). You can then deduct this from the total fertiliser requirement.

Other ideas from the group...

Several members of the group were making use of alternative bulky organic manures such as biosolids (sewage products) or digestates. These are often good, cost-effective sources of nutrients but it is important to understand the legislative implications and to know exactly what paperwork you need.

For other ideas to improve efficiency see the range of practical guides and farmer case studies on the [website](#).

Slurry samples should be taken 'as spread', e.g. from the tanker. Never enter a building where slurry is being mixed, or has recently been mixed, to sample a tank directly. Well sealed secure containers of 1 litre are ideal.

The nine climate change focus farms look at ways to improve efficiency and in doing so, reduce the farm carbon footprint. Keep up to date with their activities at:



www.farmingforabetterclimate.org

Meetings are free to attend and all farmers are welcome.

For Woodhead, contact farm facilitator Robert Ramsay on 01292 525 252 or via email on robert.ramsay@sac.co.uk for more information.

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