

Glenkilrie climate change focus farm meeting



Discussion group meeting held at Glenkilrie, Blacklunans on Thursday 15th September 2011 at 13.30 by kind permission of David Houstoun.

Meeting theme – How to make the best use of nutrients on the farm whilst maximising output

The question posed at the recent climate change focus farm discussion group meeting at Glenkilrie was *'Is it worth moving to GPS soil analysis on an upland beef and sheep farm to help to make best use of nutrients?'*. Guest speakers at the meeting were SAC specialists Peter Shipway and Alex Sinclair.

As part of the Farming for a Better Climate initiative, the meeting looked to investigate soil pH and grassland management, using recent soil test results for the farm and comparing them to the results of two fields that were sampled using GPS soil sampling techniques. More commonly used by arable farmers, soil sampling using GPS involves a series of soil samples taken across a field. The position of these samples is identified using GPS technology to provide a more detailed picture of the variation in soil nutrient status across individual fields allowing nutrient applications to be tailored.

Before investing in GPS analysis, there were some basic first principles that need to be considered, as unseen soil problems could prevent grass and crops achieving optimum yields. Peter noted that the most obvious sign that something could be amiss within the soil would be a variation in crop growth that would be instantly visible in the field or ground not favoured by cattle for grazing. There could be a range of other reasons responsible for this; if nothing is obvious then you are going to have to 'dig a bit deeper' to find out where the problem could lay.

Soil testing to establish pH and nutrient status should be carried out on a 3 to 5 yearly basis; this helps to establish a starting point and plan actions accordingly.

Alex advised that nutrient additions from slurry and manure application should always be factored in first and then amounts topped up with inorganic fertiliser as required.

Some of the key points highlighted at the meeting were:

- **Soil pH**

At Glenkilrie, soil testing revealed some interesting results. It was shown that nearly 1/3 of fields under grass were in the optimum pH range of 6.0 but with the remainder needing some kind of remediation to achieve their pH target. The group felt this would be a common picture across other hill farms. For grazing fields, clover is more sensitive to lower pH ranges so those fields with a lower soil pH could struggle to achieve a clover rich sward.

- **Crop pH requirements**

All crops have an optimum pH range; Alex noted that spring barley yields could be nearly halved if soil was allowed to fall to pH 5.3.

- **Nitrogen (N)**

Nitrogen is easily lost; the growing crop will only take up what is required for its needs at that time, so applying nitrogen in excess of the crop or grass demand means any surplus could be wasted as its lost to the environment. Alex recommended a 'little and often' approach, stating that over the whole season, grass can use 2.5kgN/ha/day.

- **Phosphorus (P)**

Unlike nitrogen, soils find it easier to hold on to phosphorus, retaining a store of P. This has allowed some farmers to take a 'P holiday', relying on previously banked P in already high status fields to supply crop needs. However, in soils with low P reserves, hard to reach P can affect seed establishment, root development, grain ripening and feeding value, impacting on yields. Trials in Scotland have shown that an enhanced response to P applied in early spring is obtained on soils of very low or low P status if P is combined with nitrogen application.

- **Potassium (K)**

Potassium (K), often referred to as potash, is another essential nutrient needed to maximise yields. It is essential for photosynthesis, improves resistance to disease, winter kill and drought and helps to maintain clover in a grass sward, with both red and white clovers being sensitive to shortages in potassium. However applications to fresh young grass in spring could induce grass staggers in freshly turned out stock, so applications should be made from mid-season onwards. Off takes of K in silage fields can be considerable (180-330kg K₂O/ha), so it's important to balance N and K fertilisers applications to grassland. Alex felt a useful rule of thumb is to apply 2/3rds kg K₂O/ha for every 1 kg of N applied.

Key findings

- Importance of maintaining good soil physical conditions - soil structure, aeration, drainage and freedom from compaction are all important pre- requisites to good grass growth and good nutrient management.
- Monitoring soil status will allow informed decisions to be made regarding nutrient application and liming
- Slurry and manure can provide a significant percentage of nutrients needed on farm, supplying phosphate and more especially potash for grass and clover growth.
- Clover fixes nitrogen and maintains grazing quality which benefits animal performance at grass
- Expensive fertilisers can be used to top up nutrient requirement
- Better nutrient management makes efficient business sense, reduces loss of greenhouse gases and helps to protect surrounding water quality.

So is GPS worthwhile for an upland beef and sheep farm?

Getting a basic understanding of soil nutrient status on your farm before using GPS sampling would be advisable. The focus farm showed that in this instance it was not viable to sample P and K using GPS, but soil testing was still a vital step in balancing nutrient and pH levels in soil to maximise crop and grass growth.

Do you farm and would you like to attend to future meetings?

The meetings provide sensible ideas for the farm business, from invited speakers and other farmers, to improve efficiency whilst reducing the loss of greenhouse gases. It's free to come along and you will be able to influence the topics, speakers and location of future meetings.

Contact Peter Lindsay for details of the next Glenkilrie event at peter.lindsay@sac.co.uk or telephone the SAC Perth office on 01738 636611.

If you want to keep up to speed with what's happening at Glenkilrie but don't want to attend all the meetings, ask to be added to the Glenkilrie email list; you will receive notification of future event and meeting notes.

Visit the website at www.farmingforabetterclimate.org or email a general enquiry to climatechange@sac.co.uk

