

Profiting from improved efficiency

Hillend
Climate Change Focus Farm

Notes from meeting on 13th
January 2016

This was the sixth meeting of the Hillend climate change focus farm discussion group, looking at practical ideas to improve farm efficiency and profitability.

On the 13th January 2016 Alistair Macrae from the Dairy Herd Health and Productivity Service (DHHPS) at The Royal (Dick) School of Veterinary Studies, The Roslin Institute and Bill Crooks Soil and Water Consultant from SAC Consulting's Environment and Design Team were invited to speak to the Hillend climate change focus farm group. The first speaker, Alistair Macrae explained about the work he was doing at Hillend with regards to herd blood profiling.

Monitoring blood profiles in the herd

Ross Logan and his parents (Ross is pictured (right) with SAC Consulting's James Buchanan (centre) and dad Jaz (left)) use the service provided by Alistair Macrae and his team to monitor the blood profile of their cows. This allows them to assess if the diet they are feeding their cows is meeting the cow's nutritional requirements. It also highlights if there are any issues of over or under feeding the cows which can be addressed before any clinical signs of ill health are shown.

The testing involves taking blood from three groups of cows;

- early lactation cows
- mid lactation cows
- dry cows.

Depending on the herd size and the number of cows available in the different groups, a number of cows are tested in each group to give an average representation of the herd profile.

Herds which are part of the testing programme can test as many cows as they want during the year (Alastair Macrae and his team provide the analysis and the commentary on the results, the local vet is required to take the blood samples).

As part of a routine programme, each herd would normally test 3 or 4 times a year depending on how many major changes there are in the cow's diets during the year.



Test types

There are numerous tests that can be run on the blood samples, however in order to keep costs to an acceptable level the bloods are only tested for a small number of blood components which give the indicators required to show if the cows are healthy on the diet they are being fed. Other blood components can be tested for in problem cases/herds when further investigation is required.

What are the benefits?

The blood profiling is seen as a management tool and allows herd managers to check if their cows are performing on the diets they are advised to feed. Diets are formulated using computers which are only as clever as the people using them, based on the analysis of forage samples which are then mixed with cereal concentrates and other forages and feeds. This involves a mixing process, where there are opportunities for quantities and volumes to be combined which may ultimately give a diet which is not the same as it appears on paper. The cows then get the chance to sort this feed and each cow may or may not get to eat the same volume and consistency of feed, depending on feed space etc. The results of the blood profiling gives an indication if what is being fed on paper to meet a dairy cows requirements, is actually what is being delivered to the cow. Good results indicate that the cows are being fed and performing as efficiently as possible, poor results indicate that changes are required to allow the cows to be kept more efficiently.

How has this helped at Hillend?

The results at Hillend were discussed. Improvements in the results were shown over time to indicate that the changes to the cows diets had improved the cows performance at Hillend. As each years grass growth and silage quality is different, it is seen as an ongoing process and the blood profiling is expected to continue as a useful monitoring tool at Hillend.

Making the most of manure

For the second part of the meeting, SAC Consulting's Bill Crooks spoke about how dairy farmers could maximise the use of slurry and manures to minimise the amount of money they spent on purchased inorganic fertilisers. The key message was that if you continue to buy and apply what you have always done then you won't save money on purchased fertiliser.

Before you consider applying less fertiliser it is essential to know the soil nutrient status of your soils. If pH is not at the target, any fertiliser applied would not work as efficiently as it would at the target pH 5.8 for grassland and pH 6 for cereals. Other soil conditions including drainage are also important and should be considered before spending money on fertiliser in each field.

Applying organic manure at the most appropriate time for crop utilisation and not just treating the manure as a waste product was also highlighted. This requires significant storage and investment if not already in place or required by SGRPID in terms of slurry storage capacity.

Bill provided a list of SRUC Technical Notes, available via the SRUC website for farmers and consultants to help establish how to make best use of slurry and manures and in turn minimise the amount of money they were spending or better target purchased inorganic fertilisers.

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Optimising the application of bulky organic fertilisers

SUMMARY

- Livestock manures should be viewed as valuable resources rather than as waste products. They can bring significant benefits to soils and crops when used appropriately, and their use can result in considerable savings on purchased fertilisers.
- Bulky organic fertilisers, other than livestock manures, (for example biosolids, distillery effluent, compost and digestate) can be useful and cost-effective crop nutrient sources that can also confer benefits to soil fertility. They can be particularly useful where livestock manures are unavailable or in short supply.
- The principles of nutrient supply and losses, and the need for livestock manure management planning are explained.
- This note provides information on the typical chemical and physical properties of the main types of bulky organic fertilisers and explains how to use the materials to best effect, whilst ensuring compliance with the relevant legislation.

1. Introduction

Bulky organic fertilisers applied to agricultural land may be produced on the farm (for example: farmyard manure, slurry) and slurry manures or brought in from outside the farm (for example: biosolids, paper chum, distillery effluent, food wastes, compost and digestate). These materials are valuable sources of organic matter, major and secondary plant nutrients. Many also contain useful quantities of trace elements. Careful recycling to and allows their nutrient value to be used for the benefit of crops and soils, and significant savings in the cost of purchased fertilisers can be made.

Livestock manures and other bulky organic fertilisers add useful amounts of organic matter to soils. They can also improve water holding capacity, drought resistance and structural stability, as well as the biological activity of soils. These improvements are most likely to be seen where bulky organic fertilisers are used regularly and the greatest benefits are likely to be observed on light and heavy soils where organic matter levels are low. Organic fertilisers should be applied in relation to all suitable land throughout the farm where agricultural benefit is likely, rather than on land which is conventionally situated in relation to drainage or roads. Care should be taken when applying bulky organic fertilisers: not to cause soil compaction, which may have a detrimental effect on crop growth and health, and may increase the risk of surface-run-off.

This technical note can be used along with MANAGERiFiC, a software tool that provides an estimate of crop available NPK supply from organic manure applications (<http://www.pastoralfarmers.co.uk/manure>) and PLANETiF, a software tool designed for routine use by Scottish farmers and advisers to plan and manage nutrient use on individual farms (<http://www.pastoralfarmers.co.uk>). SRUC00710

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Hillend Climate Change Focus Farm meetings are free to attend - all farmers are welcome. Contact farm facilitator James Buchanan on 01738 636 611 or email at james.buchanan@sac.co.uk for more information. The next meeting is due to take place on 18th February 2016.

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