Soil and Nutrient Network

Helping farmers improve soil and nutrient management

SRUC

Case study - Sinsharnie, Aberdeenshire

Sinsharnie is owned and farmed by the Davidson family at Cairnie, near Huntly, Aberdeenshire with three generations currently working on the farm.

Sinsharnie is a mixed farming unit extending to around 240ha. The main enterprises consist of finishing cattle and fat lamb production, with about 500 cattle and 1,500 lambs finished on-farm annually. 85 ha of barley and 2.5 ha of turnips are grown each year for feed. The business also carries out contracting work throughout the local area.

There are a variety of soil types at Sinsharnie with most of the soils within either the Strichen or Tarves soil series, thus meaning that the soils are predominantly clay loams.

Overall the aim on the farm is to use fertilisers efficiently and profitably, while also maintaining good soil conditions through effective soil management.

Soil and Nutrient Network - how can it benefit your farm?

Along with Sinsharnie, six other farms across Scotland are taking part in the **Soil and Nutrient Network (SNN).**

Working with SAC Consulting, the aim of the network is to demonstrate practical steps on the host farms that all farmers can benefit from to improve farm soils, maximise nutrient efficiency and save money.

Improving soil and nutrient management could also help to reduce diffuse pollution risks and cut the farm carbon footprint.

The first meeting at Sinsharnie demonstrated the importance of getting the most out of farm soils by understanding the basics. Topics included:

- Soil structure
- Soil sampling techniques and analysis
- pH & nutrient levels
- Nutrient budgeting

Some of the findings from the first meeting at Sinsharnie are overleaf.
There is more information on the Soil and Nutrient Network, highlighting what other farmers have done, at www.farmingandwaterscotland.org

Key findings from Sinsharnie

- Know how to check soil structure across the farm; identify and fix problem areas.
- Take soil samples to assess your soil pH levels and nutrient status.
- Consider the use of GPS soil analysis to further target inputs.
- Make best use of organic manures on-farm, with the possibility of reducing bagged fertiliser use.
- Put a nutrient management plan in place.

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Protecting Watercourses

Sinsharnie is located within the Priority Catchment of the River Deveron. Like many farms, there are several watercourses which run through the farm. It is important to ensure that the risk of water pollution is kept to a minimum on-farm at all times.

Diffuse Pollution General Binding Rules (DP GBRs) are in place to protect water quality, so please remember:

- No cultivation within 2 m of the top of the bank
- No application of inorganic fertilisers within 2 m of a watercourse
- No poaching within 5 m of a watercourse
- No application or storage of FYM or slurry within 10 m of a watercourse.

The Scottish Government

FARMING &WATER SCOTLAND

Farming for a Better Climate

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Soil Structure

Poor soil structure can have a negative effect on crop yields.

At Sinsharnie a soil pit was dug which showed a well managed soil profile with at least 1.5 m of topsoil. Soil structure was good within the pit and proved an excellent example of what good soil structure should look like.

Photographs of poor soil structure showed meeting attendees what to look out for when digging their own soil pit at home.

Discussions also took place on how to overcome soil structural issues. These included using a sub-soiler/mole plough, installing/improving field drainage systems, reducing in-field traffic and using a deep rooting crop to open up the soil profile.

It's important to dig a soil pit to look at the soil profile, identify the issues and then implement timely and effective soil remediation.

Soil Analysis

Without knowing the base fertility level of your soil how can you plan your lime and fertiliser applications?

A soil analysis (pH, P, K, Mg) was taken for every field at Sinsharnie. This gave a good indication of the pH and nutrient content of the soils across the whole farm. In general, the soil P status at Sinsharnie was low, while K levels were good, even if slightly high.

Soil analysis will determine the actual pH of the soil and the amount of lime required can be calculated to adjust soil pH to an optimum level for crop growth. Achieving target soil pH for your farming system can mean better yields, increased crop quality and help you to maximise nutrient use efficiency on the farm.

Soils contain a supply of P and K. Over-fertilising wastes money and can cause environmental problems. Under-fertilising can cause loss to yields. Nutrient balancing should be done on a field by field basis to replace crop nutrient off-takes and also maintain soil nutrient status.

Soil analysis forms the foundation of nutrient budgeting on-farm.

Organic Manures

Targeted use of organic manures could save you money.

Sinsharnie has ample cattle slurry and FYM (farm yard manure), which is all spread on-farm. As with soils, the nutrient content of organic manures can be variable; it's worth getting them analysed. The results from slurry analysis at Sinsharnie was showed that it contained higher levels of N, P & K than the standard book figures. The nutrient value for Sinsharnie's slurry is around £3.70/m^3 (based on 2013 fertiliser prices); that's the equivalent of around £37 worth of nutrients per 10 m^3 tanker load applied.

Targeted use of these organic manures along with nutrient budgeting has the potential to make real savings on the business' fertiliser bill.

Organic manure is a valuable resource which is often overlooked.