

Case Study: Manure management



Climate change is bringing about a new set of challenges and opportunities for agriculture. While global warming may lead to extended crop growing seasons, it could also lead to unpredictable weather, new pests and diseases, and a requirement for farmers to substantially reduce their carbon footprint.

Soil Association Scotland is running a skills development programme to help farmers and growers improve their business sustainability, cut greenhouse gas emissions, reduce agriculture's carbon footprint and increase resilience to climate change.

Optimum manure management

Effective manure management is the key to ensuring good soil health. Slurries and solid manures are valuable fertilisers, containing useful amounts of plant nutrients. They should be used at key times of plant growth so they are utilised to their full potential by the growing crop. In addition, with increasing economic and environmental pressures on farms, it makes sense to exploit the fertiliser value of manures while preventing pollution.

Mains of Inkhorn, Auchnagatt, Aberdeenshire

Run by the Smith family, this is a lowland mixed farm, 110 metres above sea level. The land is a mix of OMS and sandy loam. Crop rotation is 4-5 years grass then 4 years cropping - winter barley, rape, winter wheat, spring barley, grass undersown.

For the last 3 years the farm has used 1600 tonnes of green waste and 400 tonnes food derivative compost from Keenan Recycling. This is incorporated on the arable land at 20 - 40 tonnes per ha. It is a soil conditioner and has reduced the need for fertiliser on these fields whilst maintaining good yields.

The farm will continue to apply green waste compost onto poorer land to upgrade the soil and onto heavier parts of the farms.

Larger pieces of chopped wood open up the soil to help drainage and reduce compaction.

Food derivate waste needs to be applied more precisely once fields have been soil mapped, to use the more available N.P.K. In the long-term, should help to reduce reliance on bought-in fertiliser. Green compost has also got rid of the farm's sterile brome problem.



Benefits

Bulky organic fertilisers offer an ideal way to build soil organic matter and improve soil quality. Soil with a higher amount of organic matter has better structure and offers:

- Enhanced root development.
- Better resistance to physical stress from movement of vehicles, livestock and people.
- Reduced soil erosion and nutrient loss.
- Reduced water stress during dry spells.
- Enhanced development of soil health and nutrient cycling.
- Using organic manure also cuts down on the amount of bought-in fertiliser, which reduces costs and GHG emissions.

Considerations

- The speed of manure incorporation has a considerable effect on available nitrogen.

Manure type	Conservation target for available N	
slurry	90%	50%
FYM	Immediate	6 hours
Poultry	6 hours	48 hours

- It is vital that you know what you are applying and to have bulky organic fertilisers and slurries analysed. In this way you will know the benefits of what you are applying and reduce your need for synthetic fertilisers and lime.
- Combined with regular soil sampling and nutrient budgeting, this should give you a good field-by-field overview so you can target inputs where they are most needed.
- Long term benefits to soil health and quality will mean greater productivity whatever the crop.

Sources of Further Information

Dr Audrey Litterick, Senior Environmental Consultant, Earthcare Technical Ltd.
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Keenan Recycling Limited, Hillhead of Auchreddie, New Deer, Turriff, AB53 6YH. Tel:01771 644883. Email: info@keenanrecycling.co.uk. Website: www.keenanrecycling.co.uk

Manure Resources on Scottish Agricultural College (SAC) Website:
www.sac.ac.uk/climatechange/farmingforabetterclimate

PLANET for farmers
www.planet4farmers.co.uk
PLANET helpline - 08456 023 864 (Mon-Fri 9am-5pm)

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18C Liberton Brae, Tower Mains, Edinburgh, EH16 6AE
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