



Best Practice Nutrient Management

Sheet 30.0a

Introduction

Why change?

Good nutrient management can save time, money and protect the environment. Knowing the value of nutrients in all available sources, (fertiliser and manures) and balance these with accurate and timely applications to meet your crop nutrient needs, will provide:

- cost savings due to increased efficiency and reduced inputs
- optimum crop yields and quality
- reduced risk of watercourse pollution legal costs and fines
- improved habitat and water quality
- reduced carbon footprint



Farm nutrients are valuable and need management

Steps to Success

1. **Review** the current situation by examining nutrient management on your farm. As a first step, consider your planning system, your fertiliser inputs and the extent to which you integrate a range of nutrient sources.
2. **Identify** potential opportunities for improving your nutrient management. Make the most of the nutrient reserves in your soils and organic materials to improve crop production, save money and protect the environment.
3. **Calculate** the cost-benefit of these opportunities by estimating the cost of improving your nutrient management, (e.g. soil and manure nutrient testing, calibration of machinery) versus the benefits of improved crop production, reduced inputs and lower risk of pollution.
4. **Develop** an action plan for improved nutrient management on your farm:
 - know the nutrient requirements of your crops on a field-by-field basis
 - know the nutrient reserves in your soils. Develop a soil testing programme to assess nutrient levels and pH on a regular basis (see Information Sheet (IS) 30)
 - Understand the nutrient content of your manures and slurries. Use Nitrate Vulnerable Zone (NVZ) standard values for planning purposes and sampling and laboratory analysis for more reliable guidance. Remember to establish the nutrient content that is available to the crop and take account of the part released slowly for later crops
 - consider the use of alternative nutrient sources such as green manures arising from cover crops (see IS 32)
 - minimise your need for supplementary fertilisers by developing a nutrient budget to integrate the use of all available nutrient resources (see IS 33). Apply fertilisers accurately, at the right time and with properly calibrated equipment to maximise profits and to minimise losses and environmental impact (see IS 34)
 - observe mandatory guidelines under cross compliance if your farm, or part of it, if it lies within a Nitrate Vulnerable Zone. Be aware that the designated NVZ area was extended in 2009 and now covers nearly 70% of agricultural and in England. Follow NVZ guidance booklets on nutrient management including application and storage of organic manures and calculating crop nitrogen requirements and maximum fertilizer application rates.
 - Make use of nutrient management plans such as 'Tried and Tested' (paper-based or electronic spreadsheets) from www.nutrientmanagement.org or take advice from a FACTS adviser (www.facts.org).
5. **Plan** your nutrient management on a field-by-field basis using a farm map. Review your plan annually.
6. **Check** the quality of the watercourses and wildlife habitats on your farm regularly for signs of pollution due to nutrient runoff. Aim to minimise nutrient losses to safeguard the environment and save money.

Practical example

(adapted from www.nutrientmanagement.org)

A farm with 430 dairy cows and 300 young stock operating over owned and rented land. During the winter, the yearlings and calves are on straw and bulling heifers are on half straw, half slurry. For about 10-12 weeks from November to mid-January, there are 230 ewes grazing on the home farm. Sheep may also graze parts of the rented land. The home farm consists of 20 hectares of feed wheat and 57 hectares of grass, of which three hectares are permanent pasture. There is also nearly five hectares of broadleaved woodland. The rented land is used to grow grass, wheat, maize, fodder beet and oilseed rape.

The farm's policy is to use as little artificial fertiliser as possible by making the most of the slurry and farmyard manure (FYM) generated by the dairy unit. Every field on the home farm can receive slurry via an umbilical system. Slurry is transported several miles to the rented fields by tanker (but the cost of diesel reduces its cost benefit).



Algae in watercourses is a sign of enrichment

The nutrient content of the organic manure produced by the dairy unit is taken into account when planning fertiliser applications. To ensure they know how much nitrogen has been applied, the farmers record how much slurry is spread and measure its dry matter (DM) content with a hydrometer before application. Having had a full slurry analysis performed regularly in the past, the farmers are confident that DM content gives them an accurate assessment of nitrogen content.

The farm is in a Nitrate Vulnerable Zone (NVZ) and the rolling annual application is therefore limited to comply with the regulations (153 m³/ha dairy slurry (2 per cent DM), 43.5 tonnes/ha cattle FYM and 33 tonnes/ha of digested sewage sludge (7.4 kgN/tonne fresh weight)).

There are significant cost savings at the farm from using a nutrient planning tool which considers previous cropping regimes and the nutrient contribution made by organic manures. The farmers buy only limited amounts of manufactured fertiliser, relying instead on the nutrients in their applied organic manures (valued at over £50,000 at March 2019 prices).



Using a training shoe slurry spreader reduces nutrient losses

Remember

- Organic by-products are valuable so aim to make the most of them.
- Making efficient use of organic by-products will minimise the risk of pollution.
- Monitor the effectiveness of your management by checking cost savings and crop yields.
- Remember to check watercourses for signs of pollution on a routine basis.