

Best Practice Information Sheet

Organic by-products

Sheet 5.0a

Making the most of slurry

Why change?

Slurry is a valuable resource. Recent nutrient prices demonstrate that the slurry produced from a 1000-place finishing pig unit has a potential value in excess of £18,000/year. By taking action to manage slurry effectively you can often:

- reduce application costs
- save on nutrients, minerals and trace elements
- improve soil structure and yields
- reduce the risk of pollution



Slurry Pit.

Steps to success

- 1. Review your current situation** by identifying how much slurry you produce (use typical guideline quantities if necessary), establish the nutrient content of your slurry at the time of application (by analysis or by referring to standard values), minimise any losses from storage, and plan to supply a calculated amount of crop nutrition requirements from your slurry.
- 2. Identify potential opportunities** by considering your cropping regime, the availability of slurry and opportunities to gain good access to silage ground. For example cattle slurry applied after the first cut silage saves up to approximately £218/ha in reduced mineral fertilisers.
- 3. Calculate the cost-benefit of these opportunities** by following these practical steps:
 - estimate the total nutrients in the slurry
 - estimate available nutrients in the slurry
 - estimate the crop nutrient requirements
 - identify soil nutrient reserves
 - calculate the application rate to meet 50-60% of the difference between soil reserves and crop needs
 - identify the inorganic fertiliser top-up needed and calculate the saving in reduced fertilisers.
- 4. Develop an action plan** identifying advice, information and systems needed.. This should include typical application rates to supply known amounts of total N and delivery rates of applicators (ref: **Fertiliser Recommendations Handbook Defra RB209.**) In addition, refer to NVZ rules on applications and look into using low ground pressure vehicles to reduce the risk of panning the ground and increasing runoff.
- 5. Implement the action plan** taking care to adopt application timing strategies that follow NVZ rules. The following table shows closed periods when organic manures with high readily available N content should NOT be applied under the NVZ rules (from January 2012)

Grassland		Tillage Land	
Sandy or shallow soils	All other soils	Sandy or shallow soils	All other soils
1 Sep - 31 Dec	15 Oct - 15 Jan	1 Aug - 31 Dec*	1 Oct - 15 Jan

*On tillage land with sandy or shallow soils, application is permitted between 1 August and 15 September inclusive, provided a crop is sown on or before 15 September.

- 6. Check** to ensure suitable weather and soil conditions before making applications and that they are accurate and uniform.
- 7. Monitor progress** by checking crop yields and soil nutrients to avoid excessive build-up. Make inspection of watercourses for runoff after slurry applications a routine task.

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Making the most of slurry - Practical examples

Pig slurry on winter wheat

In this worked example, pig slurry with 4% DM content is applied in spring as a top dressing to winter wheat, on ground where the previous crop was a cereal. The available nutrients in pig slurry are N 1.8 kg/m³, P 1 kg/m³ and K 2.2 kg/m³. The soil indices of P and K are both assumed to be 2 but soil testing would be undertaken to confirm this.

The nutrient requirements for winter wheat (straw incorporated) are N 200kg/ha, P 60 kg/ha and K 45kg/ha. Allowing for the soil reserves a pig slurry application of 50m³/ha, supplies about half the N (90kg/ha) and sufficient P (100kg/ha) and K (125kg/ha).

The saving against the nutrient requirements of winter wheat reduces the NPK fertiliser inputs for this crop at costs of N=£1.07/kg, P=£1.50/kg and K=£0.97/kg, by approximately £250/ha. The total saving on NPK fertiliser inputs over the crop rotation, allowing for extra total P and K in soil reserves is up to £360/ha.



Cattle slurry used on first cut silage ground

In this worked example, slurry with 6% DM content is applied in summer on first-cut silage ground. This has a nutrient value of N 0.6kg/m³, P 0.6kg/m³ and K 3.2kg/m³.

An application of 40m³/ha of cow slurry supplies sufficient P (48kg/ha) and K (125kg/ha) and some N (24kg/ha).

The soil indices of P and K are both assumed to be 2.

The saving against the nutrient requirements of first-cut silage ground reduces the NPK fertiliser inputs for this crop by approximately £218/ha.



Match slurry application rates to the needs of crops and the capacity of each field to avoid losses and pollution

Remember

- Good management of slurry will reduce application costs, save on nutrients, minerals and trace elements, improve soil structure and yields, and reduce the risk of pollution – but take specialist advice first.
- Slurry is best applied in the spring (subject to weather, soil conditions and crop growth) in order to reduce losses of N by leaching and to enhance crop uptake.

For further information: Defra (www.defra.gov.uk), Environment Agency (www.environment-agency.gov.uk), ECSFDI (<http://www.defra.gov.uk/foodfarm/landmanage/water/csf/delivery-initiative.htm>), Natural England (www.naturalengland.org.uk), Cross Compliance Helpline 0845 345 1302 (www.crosscompliance.org.uk) and ART (www.associationofrivertrusts.org.uk)



This information sheet is part of a series providing farmers with advice on land management practices to protect water bodies, produced by Association of Rivers Trusts with support from the England Catchment Sensitive Farming Delivery Initiative. The advice will also enable farmers to use farm resources more efficiently and help meet Nitrate Vulnerable Zone and Soil Protection Review requirements under Cross Compliance and environmental regulation.



Based on Information Sheets originally created by the Westcountry Rivers Trust (www.wrt.org.uk) and developed with EAGGF objective one funding and published under permission by DEFRA and ART