

Best Practice Information Sheet

Organic by-products

Sheet 8.0a

Composting manures

Why change?

Composting manures and other organic materials arising on your farm adds value, reduces costs and increases flexibility in use. It requires low start-up capital, has nominal maintenance costs and many benefits including:

- reduced storage, handling and application costs
- reduced danger of pathogens, weed seed burden, soil-borne plant diseases and odour
- expanded application potential
- lower fertiliser/herbicide usage.



Composting manure

Steps to success

- 1. Review your current situation** by identifying the quantities and timing of organic arisings on your farm, the land and crops on which it will be used, and the equipment and yard areas available for distribution and storage purposes. Assess the potential for entering an organic scheme.
- 2. Identify potential opportunities** such as fields, crops and times when conventional applications are not possible or would cause soil damage, and increase the risk of runoff and pollution. Consider what changes in operation and equipment are needed to compost and spread the organic materials you have identified. Note that there is a limit of 250 kg/ha N per field applied in a 12 month period as organic manure in NVZ areas.
- 3. Calculate the cost-benefit of these opportunities** by comparing the costs of current operations with the proposed changes including labour, energy, fertilisers, equipment and application costs.
- 4. Develop an action plan** that includes steps to:
 - identify how best to use the compost, nutrients and soil improvement potential to reduce fertiliser and herbicide costs
 - make the compost, preferably under cover with a concrete base, as near to the site of manure arisings as possible
 - reduce transport costs by using compost direct from farmyard to crop
 - make piles up to 2.5m high, and turn at least once (more turns can benefit the process but add to costs) using existing equipment - such as a front end loader - and facilities
 - aim for 45-55°C with a short period of higher temperature to kill weed seeds and pathogens
 - control temperatures by turning or spreading the piles
 - make the starting moisture content 45–60%, and cover/shape piles to shed excess rain if outside
 - avoid saturated material, which will clog the pores and impede aeration
 - reduce ammonia loss by increasing the straw (cellulose content)
 - give priority to use on land unsuitable for untreated or liquid manures, the improvement of sandy or heavy soils, and a reduction in stock avoidance periods
 - consider co-composting other organic materials such as waste feed or vegetables.
- 5. Check** to ensure that the composting achieves the temperature and moisture levels needed, and that any leachate from the heaps (windrows) is collected and used on the compost.
- 6. Monitor progress** by comparing crop yields, soil nutrient reserves and structure. Take advice where necessary on improvements in the composting process, application and utilisation.

Organic by-products

Sheet 8.0b

Composting manures - Practical examples

Composted manures

On a grass-based farm, composting 1200 tonnes of FYM from 100 milking cows and followers reduces the amount of muck to be spread, but can be a lengthy process prone to heavy nutrient losses.

Based on additional labour requirements to turn heaps and taking account of nutrient changes, composting is a small cost to farmers. If the heaps are turned once it costs approximately 35-45p/t of FYM (total = £420-£5200). If they are turned three times it costs approximately £1.20-1.60/t of FYM.

The composted material can be spread more uniformly, and incorporates into the sward more quickly than fresh FYM or that left unturned in fields, bringing added value to the process. Additional benefits include reduction in water pollution risk by lowering the nutrients, pathogens and weed seed burden.

Payback is likely to be about one year for organic farms.

Typical benefits

- Reduced mass leads to less transport & costs
- Less storage, i.e. falling from 6 down to 2 months
- Reduced purchases of fertilisers and herbicides
- Reduced seed and pathogen burden
- Less odour
- Reduced passes in spreading
- Application at any time (subject to soil conditions)
- Reduced stock avoidance
- Reduced risk of animal disease
- Reduced risk of water pollution
- Applicable on a wide range of crops
- Increased soil humus
- Improves soil structure
- Allows incorporation of other organic wastes
- Provides potential marketable product
- Can be a step towards "Organic" status



Compost in a site near the yard and benefit from the friable humus produced

Remember

- There is a wide range of potential benefits including reduced costs, improved yields and Improved soil structure.
- Check with the EA if you need to register your composting operation.
- Composting reduces the risk of air contamination and water pollution.

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.associationofriverstrusts.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