

Best Practice Information Sheet

Soil management

Sheet 20.0a

Field drainage

Why change?

Good management of field drainage systems can save you money and protect the environment by helping to:

- maintain optimum conditions for crop growth
- provide summer bite
- reduce soil damage, soil erosion and nutrient losses
- reduce the risk of watercourse pollution
- highlight pollution problems early
- improve wildlife habitats



Poor agricultural areas can be valuable for wildlife

Steps to success

- 1. Review the current situation** by examining the field drainage system on your farm. Consider your field drainage requirements, your maintenance programme, the presence of waterlogged areas, pollution and the quality of water flowing through and from your holding and fisheries and habitats.
- 2. Identify potential opportunities** for improvements to your field drainage system. Identify poorly drained marginal areas and create or improve specific wetlands that would add value to the farm. For example, look out for significant or frequent brown water runoff or sewage fungus in ditches, signs of soil damage and poor crop growth in wetter areas.
- 3. Calculate the cost-benefit of these opportunities** by considering the benefits of improved field drainage and better crop growth versus the costs of undertaking the work, maintenance, soil erosion, and pollution.
- 4. Prioritise** fields, remembering that wetlands and areas adjacent to watercourses are important as buffer zones. Be aware of the pathways that your field drains and ditches follow to avoid rapid runoff of pollutants such as nutrients and pesticides. Be aware that problems upslope can be easily transmitted downstream.
- 5. Develop an action plan** for improvements to your field drainage system:
 - review your field drainage system and identify the need for improvement on a field-by-field basis using a farm map. Take into account the need to apply for an EIA if unimproved or uncultivated land. It is a requirement of cross compliance regulations that every farm in receipt of Single Farm Payment (SPS) must complete and maintain a soil protection review (SPR).
 - plan new field drainage, e.g. where drainage is inadequate but is required for timely and productive crop growth, or to reduce the potential for soil damage by livestock poaching
 - maintain existing field drainage, e.g. where drainage is adequate and necessary. Maintain land drain outfalls regularly. Make sure field drains stop short of watercourses to buffer them from soil and nutrient inputs
 - sacrifice field drainage where the benefits of improvements, (e.g. to enable crop growth) are outweighed by the costs. Suitable areas may include land adjacent to watercourses, natural wetlands and ribbon areas at the base of steep slopes. These can be managed as buffer zones, as wetlands, and to provide summer 'bite'
 - consider creating small ponds and wetland areas at ditch junctions or by drainage outlets to help manage runoff and increase wildlife diversity
 - avoid nutrient losses and the risk of watercourse pollution. Do not spread fertilisers, manures, slurries, dirty water and liquid wastes such as dilute pesticides onto land that is well-drained or has shallow drains in wet conditions.
- 6. Check** your fields for signs of brown water runoff or sewage fungus, particularly during or after rain.

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Sheet 20.0b

Field drainage - Practical examples

Managing wetlands for conservation

The costs of land drainage can exceed the extra income gained. More benefit may result from protecting wetlands for a dry weather bite and conservation. Funding may be available as part of Environmental Stewardship or other agri-environment schemes.

Benefits could include:

- Managing wetland - annual payments
- Grant for fencing and culverting
- Creating wildlife ponds
- Creating buffer strips

One SW farmer was granted nearly £15,000 over ten years for a similar package.



Reverting wetland area resulting from reduced land drainage



Wetland areas are often managed with periodic grazing

Animal wellbeing

In this worked example, a farmer was considering whether to drain an area of low-lying wet ground and took advice on the alternatives. He made an application for Higher Level Stewardship (HLS).

Fencing was completed on 500m of ditches and streams to exclude dairy cows and other livestock from the boggy area, although access was retained for controlled grazing. The fencing reduced lameness, injury, infection and loss/wandering of stock.

The fencing, using farm labour, cost some £4/m. Reduced lameness/injury costs of £4 per dairy animal in a herd of 100 saved £400 a year.

Payback was less than five years even without the uncosted benefits of cleaner animals, easier stock control improved wildlife habitat and the Stewardship grant.



Poorly drained soils may be best as buffer zones and valuable for a summer bite

Remember

- Good management of field drainage can improve crop growth, reduce nutrient losses and pollution risk, increase workability, lengthen the grazing period and reduce the chance of soil damage due to agricultural operations.
- It may not be cost effective to drain new areas or maintain existing field drainage. Poorly drained soils may be better suited to wetland or buffer zone creation to provide summer 'bite' and reduce the risk of pollution.
- You may be liable to prosecution if you cause watercourse 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.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.



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