

Best Practice Information Sheet

Soil management

Sheet 16.0a

Introduction

Why change?

Soil is the most important resource on your farm. Good soil management can help you to save money and protect the environment by:

- improving yields and profits
- improving soil structure
- reducing soil damage and loss
- decreasing waterlogging
- diminishing watercourse pollution
- reducing inputs
- increasing long-term productivity and sustainability.



Valuable topsoil is easily lost through erosion.

Steps to success

1. **Understanding the soils on your farm** is the key to good soil management. Soil is a finite, non-renewable resource so maintaining your soils in good condition is fundamental to the long-term productivity of your farm. Know your soils so that you can protect them for the future by:
 - **checking the condition of your soils** on an annual basis. Consider characteristics such as texture, structure, organic matter, and drainage and slope patterns. Use this information to map erosion risk across your farm (see Sheet 17)
 - **recognising soil loss and damage** on your farm. Look for evidence of soil erosion and degradation, such as brown water runoff, poaching, capping, compaction and rilling during rainfall and routine farm walks. Use this information to highlight vulnerable areas and cropping practices across your farm (see Sheet 18)
 - **planning the timing of your operations** to suit your soils. Timeliness is the key to good soil husbandry. For example, cultivation when the soil is too moist can lead to compaction and poor drainage, thereby increasing the risk of soil loss and a reduction in productivity (see Sheet 19)
 - **managing field drainage and ditches** to avoid waterlogging and maintain optimum conditions for crop growth (see Sheet 20 and 21).
2. **Map the risk of soil erosion and runoff** on your farm on a field-by-field basis. Identify vulnerable soils and crops, as well as opportunities for improved soil management. It is a requirement of cross compliance regulations that every farm in receipt of Single Payment Scheme (SPS) payments must complete a soil protection review (SPR).
3. **Plan your stocking and cropping patterns** to minimise the risk of soil erosion and damage, and to maximise long-term productivity. Correct any existing problems and avoid the risk of future costs by adapting the layout of your farm, matching land use to erosion risk, and protecting your soils using crop establishment techniques, crop cover and vegetation where appropriate (see Sheet 22).

***It can take upwards of 150 years for 1 cm of topsoil to develop.
With poor soil management this can be lost after only one rainstorm.
So protect your soils to protect your profits.***

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Sheet 16.0b

Practical examples

Poor management, high costs

Poor soil management can have a negative impact on the structure, organic matter content and drainage of soils. It can lead to an increased risk of runoff and soil erosion, with associated economic and environmental costs such as:

- crop damage and reduced yields
- loss of seed and nutrient rich top soil
- need for repeat field operations/cultivations
- watercourse pollution by sediments, nutrients and chemical contaminants
- increased flood risk
- damage to drainage systems, highways and properties
- legal fees and fines arising from damage to habitats and fisheries.

For example, serious erosion in Rottingdean, Sussex during 1987 caused on-farm costs of £13,000 and off-farm costs of £420,000.



Rilling results in lost soil and crops.

Good management, high savings

Good soil management will help to improve its capacity to hold on to nutrients, break down pesticides and limit erosion, damage and runoff, with all the associated economic and environmental benefits.

In an example, to avoid compacting a wet clay soil, slurry was not spread on a 5 ha forage maize field during the winter months. To achieve this flexibility to spread when conditions were suitable the farmer ensured he had sufficient slurry storage.

The production of maize at 33% dry matter (DM) was 13 tonnes of DM per ha. At £800 per ha, the crop was worth £4000. It is estimated that soil compaction would have reduced yields by 25%. Good practice therefore saved the farmer £200 per ha, a total of £1000.

The payback was less than one year.



Capping can result from badly timed cultivations.

Remember

- Understand the soils on your farm so that you can protect them from erosion and damage, and maintain a sustainable resource for the future.
- If soil erosion and runoff from your farm causes water pollution you could be liable to prosecution costs and fines under the Water Resources Act 1991.

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