

## Best Practice Information Sheet

# Soil management

# Sheet 17.0a

## Checking soil condition

### Why change?

Soil is the most important resource on your farm. Check the condition of your soils regularly to help you match land use to erosion risk, and reduce costs by:

- avoid soil compaction and related yield loss and disease problems
- improve soil structure to improve crop growth and yields
- improve ease of working
- improve availability of soil water and nutrients to crops
- minimise soil erosion risk
- reduce pest, weed and disease problems eg. slugs in cloddy seedbeds
- reduce waterlogging
- improve drainage

*Waterlogging is one result of poor soil management.*

## Steps to success

- 1. Check** the condition of the soils on your farm annually to help decrease soil damage, restore damaged soils and promote productivity and sustainable use of your soil resources. It is a requirement of cross compliance regulations that every farm in receipt of Single Payment Scheme (SPS) must maintain a soil protection review (SPR).
- 2. Develop an action plan** to check the condition of your soils:
  - inspect soils at a range of sites across your farm. Be aware that soil characteristics can be highly variable both between and within fields so choose sites to reflect this variability
  - use a spade to expose a soil profile at each site to a depth of about 60cm
  - assess the condition of each profile. Look at the texture, structure, drainage and organic matter content of the soil. Soil texture refers to the balance of sand, silt and clay particles in the soil. Soil structure refers to the aggregation of soil particles. Use the guide below to help with your assessment.

Good condition	Poor condition
Crumbly, friable and porous structure	Cloddy, dense and compacted structure
No compacted zones e.g. plough pans, wheeling pans	Compacted zones e.g. plough pans, wheeling pans
Deep, branching roots that grow downwards	Horizontal, stunted or restricted roots
Cracks that allow rooting and drainage	No cracks
Worm holes	No worm holes
Freely draining, brownish soil	Grey, yellow and mottled anaerobic (oxygen depleted) layers

- 3. Map the risk of soil erosion** on your farm. Estimate the annual rainfall on your farm and the slope of your fields. Combine this information with your assessment of soil condition to identify areas of high, medium and low erosion risk.
- 4. Manage** the condition of your soils. Correct any current problems and avoid the risk of future costs by:
  - adapting the layout of your farm to minimise soil damage and erosion
  - matching land use to erosion risk, e.g. avoid late sown winter cereals, potatoes and maize on high risk areas such as long steep slopes, particularly those leading down to watercourses
  - protecting your soils using best farming practices such as crop cover, vegetation and crop establishment techniques.
  - Carrying out sub-soiling in compacted areas or soil slitting in grassland and other soil amelioration techniques
- 5. Review your progress** by checking soil conditions and by establishing simple practical steps and indicators to monitor improvements.

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# Sheet 17.0b

## Checking soil condition - Practical examples

### Erosion risk assessment

Use this table as a guide to the risk of soil erosion on your farm: Source Defra

SOIL TEXTURES	STEEP SLOPES >7°	MODERATE SLOPES 3-7°	GENTLE SLOPES 2-3°	LEVEL GROUND <2°
Sand	Very High	High	Moderate	Slight
Loamy sand				
Sandy loam				
Sandy silt loam				
Silt loam				
Silty clay loam	High	Moderate	Lower	Slight
Other mineral soils	Lower	Slight	Slight	Slight

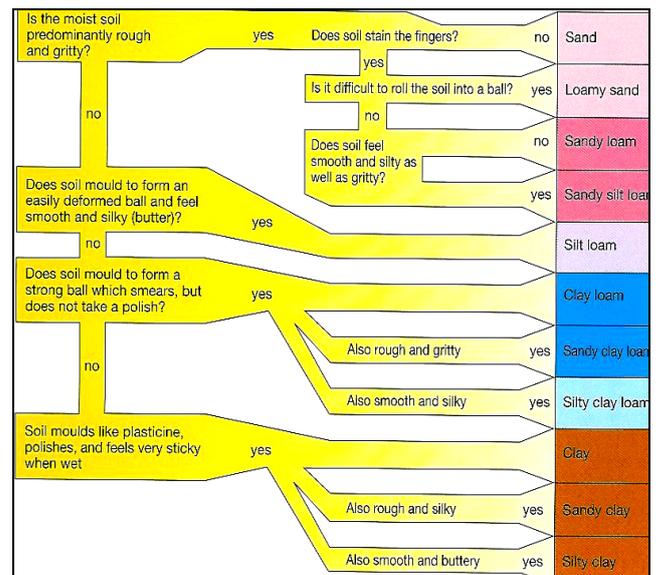
- risks will be lower where average annual rainfall is less than 800mm
- risks will be higher on long, unbroken slopes and where slope patterns and local valley features channel flow.



Crop and soil loss resulting from erosion.

### Soil texture assessment

To work out the texture class of soils on your farm, moisten a dessertspoon of soil, knead it thoroughly between your finger and thumb, and follow the diagram below:



Poor crop establishment resulting from flooding

- Remember**
- Check the condition of your soils regularly to help save money and protect the environment.
  - Aim to match land use to soil conditions to reduce soil erosion, improve soil structure and maintain a productive 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](http://www.defra.gov.uk)), CSF ([www.gov.uk/catchment-sensitive-farming](http://www.gov.uk/catchment-sensitive-farming)), Natural England ([www.naturalengland.org.uk/csf](http://www.naturalengland.org.uk/csf)), Environment Agency ([www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)), Cross Compliance Helpline 0845 345 1302 ([www.crosscompliance.org.uk](http://www.crosscompliance.org.uk)) and The Rivers Trust ([www.riverstrust.org](http://www.riverstrust.org))



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CATCHMENT SENSITIVE FARMING

This information sheet is part of a series providing farmers with advice on land management practices to protect water bodies, produced by The Rivers Trust with support from Catchment Sensitive Farming. 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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