thinksoils

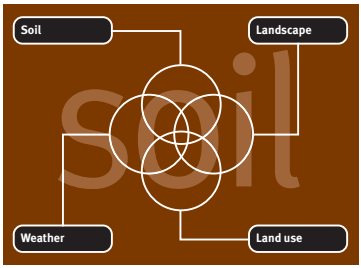
Environment Agency

Soil assessment to avoid erosion and runoff

This document is meant as a quick guide and it should be used in conjunction with the Environment Agency 'think soils' manual.

To reduce the likelihood of field erosion and runoff you should identify:

- **risks which come with the land** (such as soil texture, rainfall, slope angle), **and**
- **Risks arising from land management decisions** (such as soil structure, slope length, land use).



Checklist of factors that influence the severity of field erosion and runoff:

Landscape:
- Identify slopes (angle, length, complexity, valley features)
- Identify proximity and connectivity to watercourses, roads and houses

Soil:
- Identify soil texture (use published maps and field assessment)
- Identify soil structure (topsoil and subsoil)
- Identify soil wetness (amount and duration of waterlogging)
- Identify surface rainwater storage (soil surface roughness)

Weather:
- Identify rainfall amount and intensity (including flooding frequency on and off-site)
- Identify climate (including wind and temperature)
- Identify soil workability (including snow covered and frozen ground)

Land use:
- Identify high risk crops (current and planned)
- Identify high risk land management practices (current and planned)

Indicators of soil problems:

Surface: gulleys, rills, sediment deposition, ponding, brown water runoff, poaching, wheel ruts, surface cap.

Topsoil: compaction, few pores, horizontal fissures or cracks, grey colour, poor structure (shape size and strength of soil structural units), plough pan.

Subsoil: compaction, few pores, poor structure (shape size and strength of soil structural units), poor drainage.

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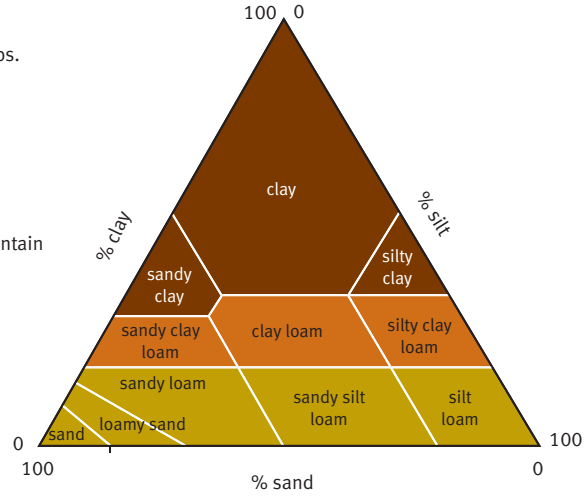
Identification of soil group

Soil can be placed into one of five broad groups.

- Sandy and light silty soils (see triangle)
- Medium soils (see triangle)
- Heavy soils (see triangle)
- Chalk and limestone soils (often shallow)
- Peaty soils (peat and organic soils that contain more than 20% organic matter)



Identification of soil texture

For practical purposes you can assess soil texture by hand (follow the diagram below). Take about a dessert spoonful of soil. If dry, wet up gradually, kneading thoroughly between finger and thumb until crumbs are broken down. Enough water is needed to hold the soil together and to show its maximum stickiness.