



Check Sheet for Soil Management

Soil is the basis for farming, providing water, nutrients and a medium for plant growth. Soil organisms improve water quality and filters water to protect surface and ground waters from pesticides, nutrients and pathogens.

The following questions may aid, or remind, you of management practices to help maintain your soil's performance whilst reducing the potential for erosion and run-off losses:-

Slopes, soil textures and the weather cannot be changed but we can control tillage, organic matter content, cropping and make other management choices to help reduce potential losses and increase returns

PLANNING: Do you or others on your land check your soil's performance? To do this do you

		YES	NO	ACTION
A 1	Complete a Soil Management Plan and review of your soil husbandry, before deciding what crop to plant and how to grow it? Follow the Cross Compliance requirements for soil management (GAECs 4, 5 & 6)?			
A 2	A map of your farm soil types will help to comply with Regulations, timeliness of harvesting, and also help to manage your inputs and fieldwork. Consider source > pathway > receptor in view of water pollution risk and take action to reduce sources of pollution, slow or stop pathways of pollutants and protect the receptor?			
A 3	→ Runoff, drains, yard and track losses to vulnerable adjacent water/wildlife sites. Any risk of nitrates or pesticides leaching if bare ground. → Consider buffers or changing soil management to protect water bodies.			
A 4	Check your soil organic matter levels and have targets linked to each soil type? → Where possible incorporate organic matter. Fresh green manures rapidly improve soil structure. → Soil organic matter improves soil fertility by increasing nutrient and water holding capacity and biota. → Low organic matter levels on heavy soils reduce working windows and increases fuel consumption whilst on light soils they may increase erosion and capping. → High Carbon:Nitrogen ratio wastes (e.g. paper pulp or straw after carrots) can reduce N availability to crops especially in light soils.			
A 5	Check the soil profile in each field annually for signs of compaction and remedy soil structure problems through cultivations e.g. by subsoiling soil pans (AVOID HISTORIC OR ARCHAEOLOGICAL FEATURES)?			
A 6	Consider the use of cover crops to hold nitrogen, reduce erosion on light soils and improve soil structure (GAEC 4)?			
A 7	Consider alternatives available to reduce stocking densities or the removal of livestock during wet periods to reduce surface compaction from poaching?			

Putting your written soil plans into action requires thought and physical examination of the field before operations take place. Over tillage, the wrong soil condition or over application can all lead to losses and extra expense.

PREPARING: Before starting fieldwork will you or others managing your land...

		YES	NO	ACTION
B 1	Check that the field soil condition is suitable for the machine to be operated throughout the depth of working?			
B 2	Check that the soil profile to adjust machine to depth required and for soil moisture levels to see if changes are required?			
B 3	Check tyre pressures tractor weights and/or tyre ballasts daily to minimize wasted fuel? → Use the lowest possible tyre pressure for the work to reduce surface compaction and thus the risks of run-off and erosion			
B 4	Where possible, establish crop cover as quickly as conditions allow? → Erosion from the seedbed tends to reduce as the crop cover increases			
B 5	Use field margins, bunds or grassed valley strips to protect watercourses particularly if tramlines across steeper slopes are not practical?			
B 6	Manage soils so water cannot run off from the treated area onto another field, road, track or other feature from where it could directly enter a watercourse?			
B 7	Establish beetle banks or 5m minimum width grass strips across entire fields where slopes over 5% (1 in 20) run for more than 200m? → Best located where the slope changes			
B 8	Avoid autumn ploughing of peaty soils? → Leaving land bare leads to increase risk of wind erosion over the winter period			
B 9	Use nurse crops, windbreaks and mulches/fleeces to reduce wind erosion? Consider using 'tied ridges and Aqueel' type systems to reduce the potential of erosion and run-off			
B 10	from irrigated crops on slopes? → Particular attention should be paid to leaking pipes and joints as causes of soil loss.			
B 11	Open the turf structure (e.g. by slitting) on grasslands? → Will help increase grass growth and quality			

Your observations and changes made during field operations can dramatically reduce losses through erosion and run-off so saving money and reducing potential pollution events

FIELD WORK: Whilst completing field work, do you or others managing your land...

	YES	NO	ACTION
C 1 → Avoid leaving fine tilths on overwintered fields? Can you do more frequent min-tilling, use less power or make fewer cultivator passes? → If unable to plant a crop, or cover crop, leave in stubble with rough cultivation to increase water flow into soil			
C 2 → Run tramlines across slopes where practical and NOT down slopes leading to a watercourse? Drill without tramlines to reduce erosion and run-off? → Tramlines are a major source of runoff and erosion losses. Buffer bottoms of slopes next to watercourses/next to tracks → Establish wheelings using Global Positioning Systems, if available			
C 3 → Use Low Ground Pressure tyre systems, especially in autumn? → Leave a good trash cover and ensure rapid crop establishment?			
C 4 → Crop cover reduces the impact of raindrops which can break down soil crumbs so can trigger soil erosion			
C 5 → Avoid over-working the soil, e.g. when de-stoning/de-cladding? → Producing a fine tilth increases the risk of it becoming slaked or capped and this increases the risk of run-off and reduces water use efficiency			
C 6 → Check the infiltration rate of the soil to adjust irrigation application rates? → Ensure there is little surface ponding or runoff at soil surface			
C 7 → See soil movement from high volume, large droplet irrigation or rainfall? → If so, investigate. Use a rain gauge or tin cans to help measure and follow soil and water pathways to see why			
C 8 → Record areas of waterlogging or poor drainage for later investigation to check if pipe drainage or moling work is required?			

How good is your soil management?

If you have answered substantially more **YES** answers than **NO** then you are doing a great deal to protect water and fine tune your soils performance. However, every **NO** answered has a potential cost, or consequence. Consider actions in these areas to improve your soil management and reduce losses.

Further information and advice:

Agriculture and Horticulture Development Board (AHDB):
www.ahdb.org.uk

Agricultural Industries Confederation (AIC) - Fertiliser Industry Assurance Scheme: <https://www.aictradeassurance.org.uk/fias/>

Catchment Sensitive Farming (CSF) - To find out if you are in a CSF catchment and if so, contact your local Catchment Sensitive Farming Officer: www.naturalengland.org.uk/csf

Defra - Nitrate Vulnerable Zone (NVZ) information:
<https://www.gov.uk/guidance/nutrient-management-nitrate-vulnerable-zones>

Environment Agency - www.environment-agency.gov.uk

FACTS - consult a FACTS qualified adviser for nutrient management advice: www.basis-reg.com

Farming Advice Service (FAS) - cross compliance and nutrient management advice:

<https://www.gov.uk/government/groups/farming-advice-service>

Health and Safety Executive - storing and handling ammonium nitrate: <http://www.hse.gov.uk/agriculture/faqs.htm#c5>

National Association of Agricultural Contractors (NAAC):
www.naac.co.uk

Natural England - www.naturalengland.org.uk

NCTSO Five Point Plan to Secure your Fertiliser:
www.secureyourfertiliser.gov.uk/10points.htm

Nutrient management planning software tools: **PLANET** and **MANNER NPK** www.planet4farmers.co.uk

Tried & Tested nutrient management planning tools and advice including a paper based plan: www.nutrientmanagement.org