

Best Practice Information Sheet

Cultivation techniques to protect soils **Sheet 26.0a**

Rough ploughing

Why change?

Good crop establishment leads to optimum yields. Employing rough ploughing techniques will increase infiltration, and will reduce soil erosion after late harvested crops. The benefits include:

- improved crop productivity
- improved soil structure
- reduced loss of soil, seeds and inputs
- reduced watercourse pollution, and the risk of legal costs and fines.



Rough ploughing increases infiltration.

Steps to success

- 1. Review the current situation** using the **Cross Compliance Soil Protection Review (SPR)** and review annually. Consider whether rough ploughing could help to reduce soil erosion and runoff on your farm. Look at factors such as your crop, soil types and system of cultivation.
- 2. Identify potential opportunities** for using rough ploughing to protect soils on your farm. Be aware that a coarse seedbed over winter can help reduce soil erosion, soil degradation and runoff. Look for evidence of these problems such as capping and compaction, and consider whether rough ploughing could help you to address these and save money.
- 3. Calculate the cost-benefit of these opportunities.** Rough ploughing is cost-neutral and you could make savings due to reduced loss of soil and inputs, in addition to improved yields and productivity.
- 4. Develop an action plan** to use rough ploughing to protect the soils on your farm:
 - identify where rough ploughing could help you to protect the soils on your farm. For example, where soil structure is damaged and is planted with late harvested crops such as maize and root crops, rough ploughing immediately after harvest can help to remove rutted and compacted surfaces, improve drainage and surface water storage, and reduce the risk of soil erosion and runoff
 - remember that timeliness is essential. Minimise soil damage by avoiding operations when the soil is wet. Check the condition of your soils regularly using a spade.
 - consider combining rough ploughing with cross-slope interceptors such as beetle banks to reduce slope length and the risk of runoff.
- 5. Check** your fields regularly during rainfall for soil erosion and runoff. Tackle any problems as they occur to minimise costs and protect the environment.

Cultivation techniques to protect soils **Sheet 26.0b**

Rough ploughing - Practical examples

Benefits of rough ploughing

Using timely rough ploughing can:

- Improve soil structure.
- Increase soil infiltration of rainfall.
- Reduce runoff and erosion.
- Reduce losses of soil, nutrients, seeds and crops.
- Increase yield and productivity.
- Reduce off-farm sedimentation.
- Protect water quality and reduce risk of legal action.
- Protect wildlife habitats.



Example of rough ploughing.

Reduced runoff and erosion

Typical annual savings from reduced soil migration by timely ploughing in 10 ha of winter wheat would include:

- Reduced loss of yield and productivity @ £6 per ha = £60.
- Reduced need for deep ploughing to refurbish areas with rills and gullies on 2 ha @ approximately £80 per ha = £160.
- Reduced need for highway cleaning 2 hours @ approximately £60 an hour = £120.
- Reduced need for ditch cleaning 200m @ approximately £1.75/m = £350.

This gives an annual total saving of £690.



Rough ploughing can reduce erosion risk.

Remember

- Know the soils on your farm, and aim to protect them and save money by optimising crop establishment.
- Use rough ploughing where soil and crop conditions are appropriate.
- Timeliness is key. Avoid working wet soils to reduce the risk of capping, compaction, erosion and runoff.

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)