

Best Practice Information Sheet

Cultivation techniques to protect soils **Sheet 25.0a**

Contour ploughing

Why change?

Good crop establishment leads to optimum yields. Cultivation across slopes promotes stable crop establishment and reduces the risk of soil erosion and runoff.

Plough with the contour to:

- increase crop productivity
- improve soil structure
- reduce the loss of soil, seeds and inputs
- reduce watercourse pollution and the risk of legal costs and fines.



Contour ploughing reduces erosion risk.

Steps to success

- 1. Review the current situation** by considering whether the direction of your cultivations are appropriate for the slopes, soil and crop types on your farm. If you currently plough downslope you could benefit from contour ploughing. Use the cross compliance soil protection review (SPR) and review this annually.
- 2. Identify potential opportunities** for using contour ploughing to protect soils on your farm. Look for evidence of soil erosion, degradation and runoff in association with downslope cultivation. Consider whether ploughing across the slope could help to minimise any problems and save you money.
- 3. Calculate the cost-benefit of these opportunities.** Contour ploughing is cost-neutral and you could make savings due to reduced loss of soil and inputs, as well as improved yields and productivity.
- 4. Develop an action plan** to use contour ploughing to protect soils on your farm:
 - identify where contour ploughing could help you to protect the soils on your farm. Not all locations will benefit from a change in the direction of cultivations. Contour ploughing is most effective on gentle, uniform slopes
 - follow the contour precisely and remember that where slopes are complex this may be difficult and could lead to soil damage by channelling water into rills and gullies
 - be aware that in some cases, the operation of machinery such as root crop harvesters across steeper slopes can be dangerous and less efficient
 - use a reversible plough to throw soil upslope and help counter the effects of erosion
 - consider combining contour 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 by using your SPR. Tackle any problems as they occur to minimise costs and protect the environment.

***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.***

Cultivation techniques to protect soils **Sheet 25.0b**

Contour ploughing - Practical examples

Contour ploughing can reduce costs

Soil management on slopes is critical for profitable cropping. In the right circumstances it can:

- Increase crop productivity, not least by protecting the valuable topsoil.
- Improve the soil structure.
- Minimise the loss of soil, seeds nutrient and chemical inputs and plantings by reducing runoff and erosion.
- Reduce the risk of watercourse pollution and associated legal costs and fines.
- Protect wildlife.

If there are obvious signs of soil migration downslope advice should be sought on whether contour ploughing (or other practices) would be a safe and valuable change to your operation.



Contour ploughing can minimise soil, seed and nutrient loss.

Changing practice on vulnerable soils

In many circumstances where there is a significant risk of large quantities of topsoil moving downslope, for example from runoff and erosion, it is possible to obtain considerable cost savings by changing to more sustainable operations such as contour ploughing.

Typical annual savings from reduced soil migration 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.



Preventing downslope soil migration can increase profitability.

Remember

- Know the soils on your farm. Aim to protect them and save money by optimising crop establishment.
- Use contour ploughing where slope, 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)



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.



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