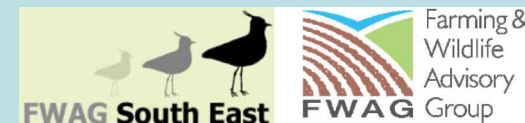


# Healthy Living Soils 29.11.2016

*Practical actions to improve farm soil management*

**Paul Cobb**

**07713 333160**



# What is the problem?

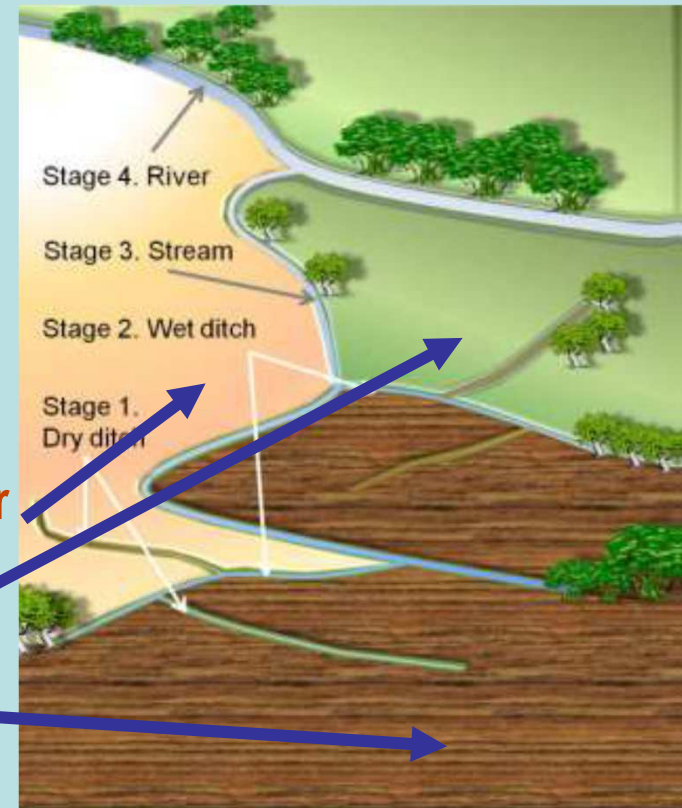
Inappropriate / untimely land management leads to:

**Poor soil structure and low organic matter**

**Reduced infiltration of water into soil**

**Increasing soil erosion + flashy' run off**

**+ less productive soils, harder to work**



Soil erosion and runoff take sediment causing:

- Loss of topsoil with nutrients, organic matter, inputs
- Damage to the quality of watercourses
- Deposition and greater flood risk downstream

# A cross compliance issue

Cross compliance GAEC 4 – minimum soil cover

‘You must protect soil by having minimum soil cover unless there is agronomic justification for not doing so or where it would conflict with GAEC 5’

Minimum soil cover provided by:

Vegetative cover from crops

Cover crops

Game cover

Trees

Overwintered stubble

Other stubbles such as veg and maize stubbles

# A cross compliance issue

Cross compliance GAEC 5 –  
minimum land management  
to limit soil erosion

‘You must put measures in  
place to limit soil and  
bankside erosion caused by  
cropping practices, wind,  
livestock, and vehicles’

A reduction in payment if  
erosion is greater than 1 ha  
or 20 m long and 2 m wide  
on a watercourse



# Arable issues



# Livestock issues



# Sustainable Soil Management

## Key points:

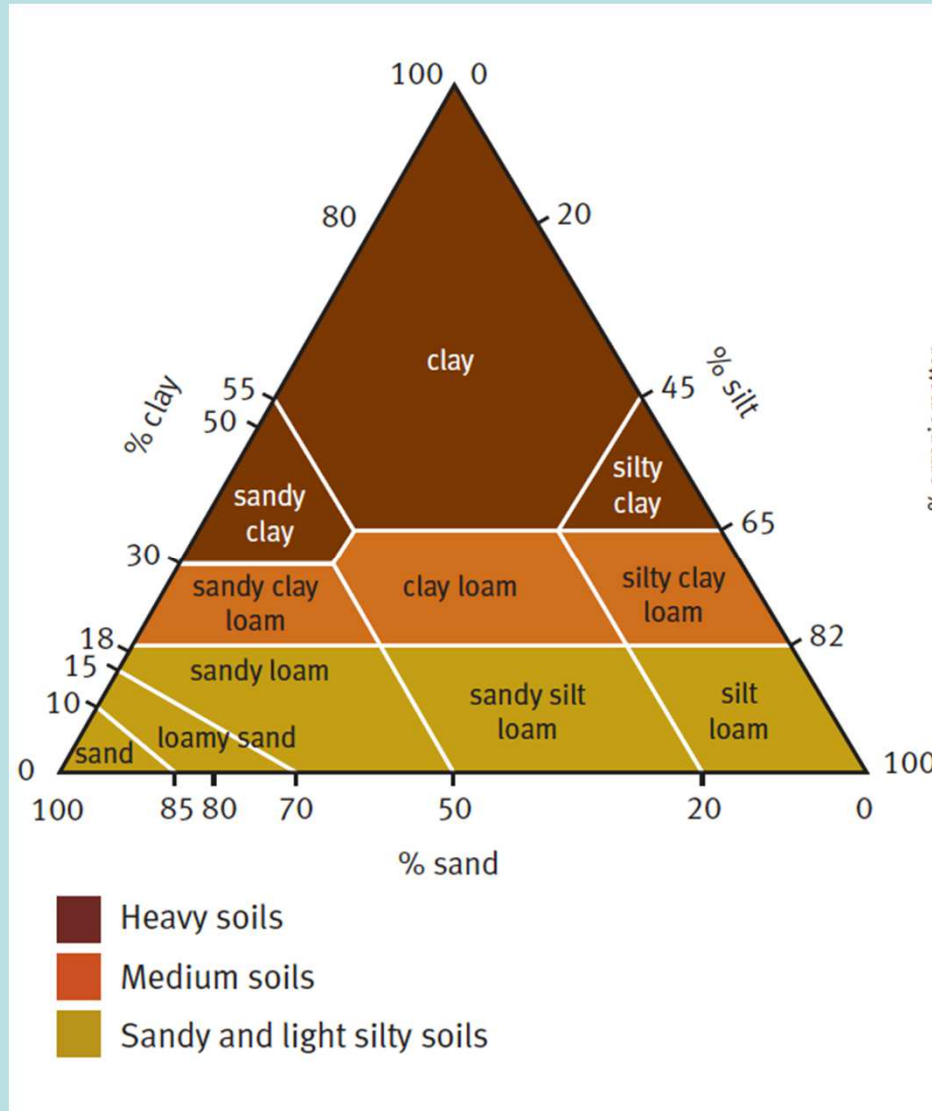
- Make water go through the soil not across it!
- Look after your soils and keep OM levels high
- Avoid traffic and compaction when possible
- Stock at the right levels and the right times
- Plan access and movements - think CTF

## Today:

- Know your soils
- Best practice solutions in arable and grassland
- Sources of further help/grants
- Catchment Sensitive Farming
- Campaign for the Farmed Environment



# Get to the bottom of it!



✧ Dig a hole – see what your soils look like below the surface

✧ Do a soil survey – know the variety of soils across your farm

✧ Get a soil management plan – identify areas of inherent and managed risk



**Autumn sown  
cereal crop under  
sandy soil**

Abundant pores  
allow good  
drainage and  
aeration; good  
rooting

**Long term  
grassland under  
clay soil**

Fine grass roots,  
earthworm activity  
and high organic  
matter





# Cereals / other combinable crops

## **Cereals can benefit soil structure:**

- organic matter inputs (roots, stubble, straw)
- deep rooted and dry soil out
- normally harvested in dry conditions

## **Good soil husbandry practices:**

- Travel on soils as little as possible – ‘controlled traffic’
- Remove compaction - loosen topsoil or subsoil where necessary (dig a hole!)
- Drill early - good crop cover (slumping and capping)
- Where safe establish tramlines across slope, loosen compaction to avoid channelling
- Leave rough seedbeds and avoid over cultivation - minimum tillage and direct drilling when possible
- Apply organic manures or introduce grass leys/catch or cover crops where organic matter is low

# Maize and other forage crops

- Avoid growing maize and other forage crops on land where the chances of runoff and erosion are high
- Use early maturing maize varieties on fields vulnerable to compaction and runoff / erosion and use cover crops
- Cultivate as soon as possible after harvest or grazing to remove compaction and 'open-up' the soil surface
- Manage grazing of forage crops and crop residues to minimising poaching and runoff:
  - avoid slopes vulnerable to runoff and erosion
  - limit periods of access
  - start at the bottom of sloping fields and back fence
  - cultivate strips across the slope to reduce runoff (if practical)

# Case study: Arable - cover crops



- ✧ Variety of autumn sown temporary straights or mixes
- ✧ Erosion control, improved structure and soil OM
- ✧ Greening EFA or Countryside Stewardship grant

**Cost: low to medium**  
**Benefit: soil and crop**



# Improved and short term grassland

## **Grass can benefit soil structure:**

- high organic matter input
- dense and deep rooting

## **But machinery damage and grazing cause problems :**

- Avoid spreading manures under wet conditions (NB also a pollution risk and has closed periods in NVZ )
- Livestock damage soils when wet (from grazing, outwintering, and around supplementary feeders)
  - Maintain effective field drainage systems
  - Use well drained tracks for vehicles and livestock
  - Move feeders or put onto hard standings
  - Tackle problems (compaction, poaching) with e.g. spiking or sward lifting (dig a hole!) or reseed

# Permanent / long term grassland

- Adjust stocking rates to avoid overgrazing and loss of vegetation cover
- Manage stock to stop overgrazing localised areas
- Manage supplementary feeding away from sensitive vegetation and move to avoid breaking the soil cover - keep away from watercourses
- Use low ground pressure machinery and keep to established tracks and paths
- Where possible, install and maintain tracks so as to minimise runoff
- Block existing grips and surface drains where erosion is occurring and do not dig new ones

# Case study: Grassland – river fencing



- ✧ River fenced both sides to exclude stock + prevent erosion
- ✧ Trough and piped water installed
- ✧ Countryside Stewardship water capital grant

**Cost: low to medium**

**Benefit: stock and water**

# Other solutions / further help

- **Remove the source - slow the pathway - protect the receptor**
- Grassed waterways to reduce flow and erosion
- Temporary storage ponds to hold up surface water
- In-ditch wetlands / seepage barriers to slow water
- Field margins / strips to buffer watercourses

**Grants – Countryside Stewardship**

**Greening – EFA margins and buffers**

**Environment Agency *Think Soils*:**

[www.environmentagency.gov.uk/business/sectors/soils.aspx](http://www.environmentagency.gov.uk/business/sectors/soils.aspx)

**Catchment Sensitive Farming:**

[www.naturalengland.org.uk/ourwork/farming/csf/default.aspx](http://www.naturalengland.org.uk/ourwork/farming/csf/default.aspx)



# Countryside Stewardship

## Objectives for water quality, biodiversity, flood protection

- Countryside Stewardship helps farmers take action to improve water quality
- CSF provides CS support to farmers via CSFOs, partners & contractors targeted at water quality using
  1. Water Capital Grants (stand-alone)
  2. Mid Tier 5-year agreement  
Land management options with  
2- year programme of capital works
  3. Higher Tier 5 (or 10) year agreement  
As Mid Tier but more options available

[www.gov.uk/countrysidestewardship](http://www.gov.uk/countrysidestewardship)

# Countryside Stewardship Mid Tier

- CS is a new opportunity to improve water quality using new capital items & land management options for soil and water
- Wide range of mid-tier options for Water (esp. meeting Biodiversity objectives) including:



2 year legume fallow



Winter cover crops



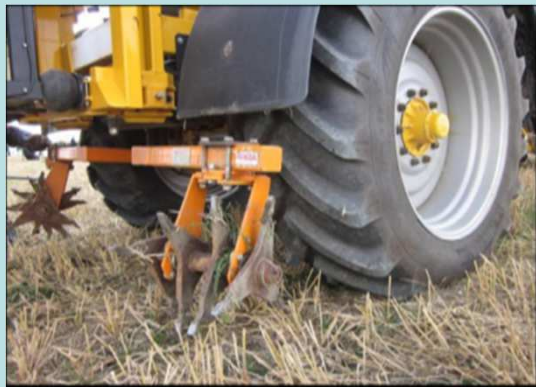
Wide buffers and riparian strips



New Water holding features: Seepage barriers, earth banks, swales, check dams...

# Countryside Stewardship Higher Tier

- Targeted for priority sites with complex management
- Mid Tier options and capital items also available
- CSF works with other Natural England advisers to include management options and capital items for water quality where relevant
- Some items and options only available in Higher Tier including most grassland and some water eg:



Tramline disruption



Grip blocking of drainage channels



Constructed wetlands  
- need CSF advice

Higher Tier only

# Catchment Sensitive Farming

- Managing the use of fertilisers, manures and pesticides
- Promoting good soil structure
- Protecting rivers and drinking water supplies from runoff with soil, nutrients and pesticides
- Managing stock to avoid soil compaction and poaching
- Separating clean and dirty water and slurry
- Advice and workshops
- Capital grant funding (now in CS)



**A clear solution  
for farmers**  
CATCHMENT SENSITIVE FARMING



Environment  
Agency



Funding is from the  
European Agricultural  
Fund for Rural  
Development Europe  
investing in rural areas.

# Current Priority: Metaldehyde



- A useful product, but expensive and difficult to remove from drinking water
- Costs £ millions to the water industry each year.
- **Regular exceedances means abstraction has to stop when water is needed to fill reservoirs**
- Can we afford to lose this useful 'tool in the box?' – 2018 deadline



# Metaldehyde is a pesticide!



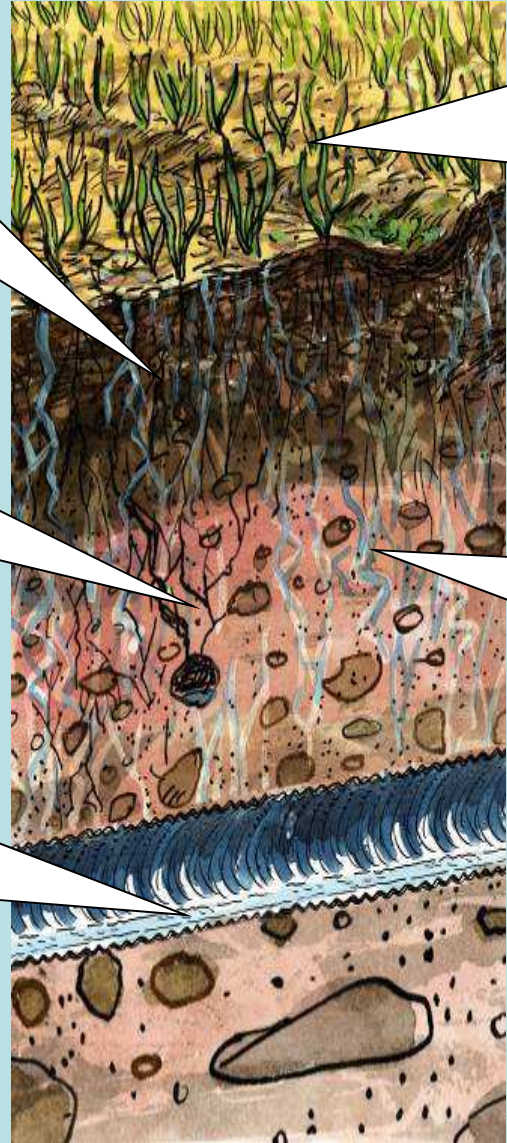
Saturated fields

Bare soils  
Rutted tramlines

Deep cracks

Leaching

New mole drains



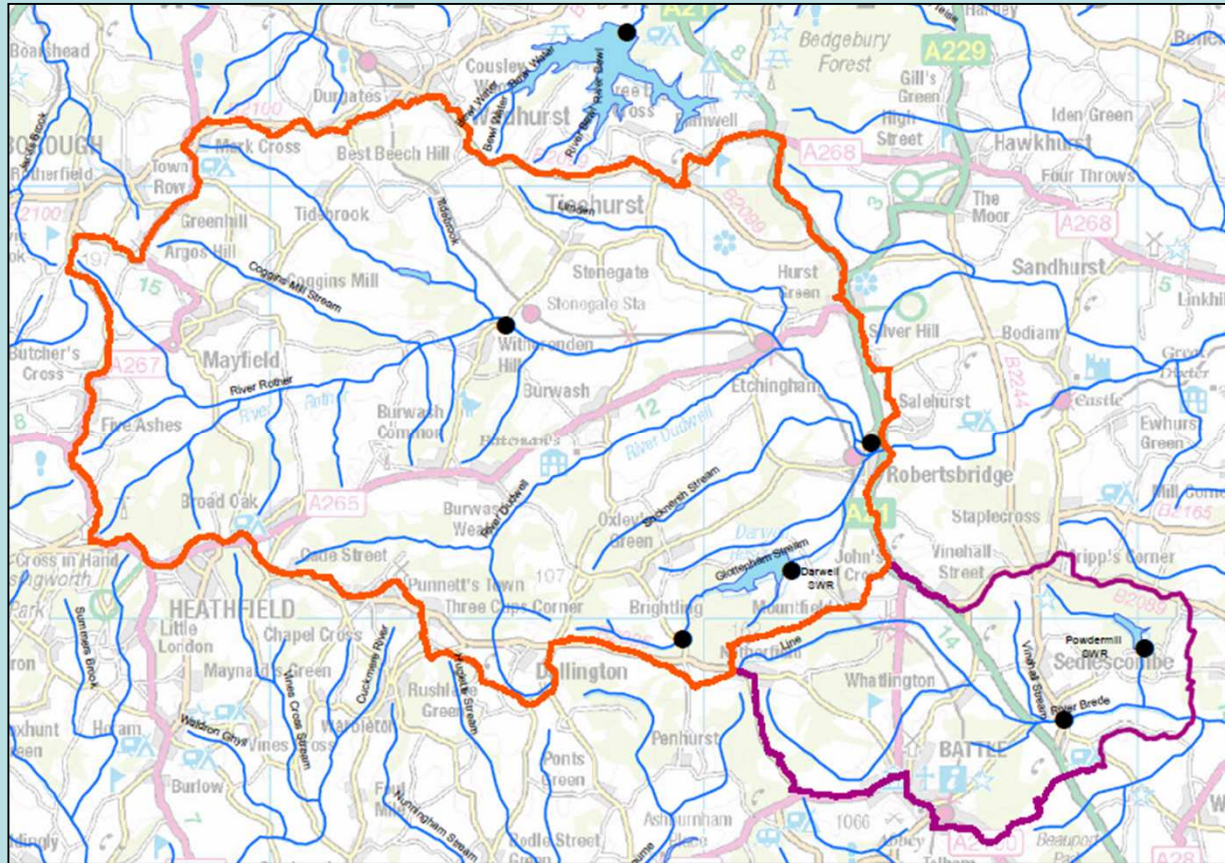
# Soils and Metaldehyde



- Avoid Metaldehyde on high risk fields i.e. with short steep or long gentle slopes, and in the first year after mole draining
- Rotate crops as much as possible and if possible avoid high risk areas with known slug 'hotspots'
- Use cultural and mechanical control – cultivation passes, fine firm seedbeds, roll after establishment
- Drill a little deeper than normal if seedbed is cloddy and effective slug control is difficult
- Whenever possible fill the applicator hopper in the field and clear up spills immediately – no matter how small – Metaldehyde will find its way!



# Catchment Sensitive Farming



**E. Rother and Brede Catchment -  
Financial Incentives for Alternative  
Slug Control Measures**



# ER&B Incentives



- ✓ Metaldehyde substitution: £1 /kg for use of Ferric Phosphate **or** £8 per Ha for complete avoidance of Metaldehyde 2016/17 cropping year
- ✓ Free slug pelleter calibration – NB under Sustainable Use Directive deadline was 26th November 2016
- ✓ Free pesticide training PA1 (safe pesticide use foundation course) + PA4 (slug pellet application)
- ✓ FREE 1:1 confidential farm advice visits

**Contact me!!**



# Campaign for the Farmed Environment

- Show leadership & ownership of environmental issues in planning for the future - helping businesses meet the environmental challenges
- Opportunity to demonstrate land managers taking responsibility for the environment to the rest of the industry & general public
- Helps farmers support the natural environment, while farming productively
- Sign posting best practice in **soil management**, crop nutrition and pesticide use
- Information and contacts;

[www.cfeonline.org.uk](http://www.cfeonline.org.uk)



# CFE Resources



[www.cfeonline.org.uk](http://www.cfeonline.org.uk)

Cor  
advice fo

Home About us Advice and Training Campaign themes Events News Resources Your area

**Pollinators**

Welcome to the CFE website

The Campaign for the Farmed Environment (CFE) is encouraging farmers and land managers across England to protect and enhance the environmental value of farmland, through measures that at alongside productive agriculture. The CFE helps you choose the right environmental measures, put them in the right place and manage them in the right way - to protect soil and water, and benefit wildlife. CFE is a partnership approach, supported by many organisations engaged in agriculture and the environment. By working in partnership with the CFE, voluntary initiatives (Environment for Action Plan, Trust & Tackle) and the voluntary initiatives demonstrate how the industry collectively takes responsibility for addressing environmental issues alongside profitable farming.

Want to be involved? The Campaign Themes page is where you can find our voluntary measures and see how you can support the CFE.

Want to find out more? Use our interactive map to find out what is happening in your area.

**Latest News**

- Growing maize?  
Last updated: 25 Jul 2013
- Campaign Gets Back Down to Earth in Essex  
Last updated: 23 Jul 2013
- CFE Farmer Shortlisted for award  
Last updated: 25 Jul 2013

**Latest Tweets**

CFEonline CFE  
Monitoring and remedying soil  
problems: #CFE & #CSF working  
together <http://bit.ly/cfemrta>  
@CFEonline @CSFonline

**Latest Events**

- ELS Last Chance - Farm walk and workshop in York  
09-Aug-2013 - 09-Aug-2013
- Kings Open Day - East Yorkshire  
09-Aug-2013 - 09-Jul-2013
- Soil Management Workshop  
09-Aug-2013 - 09-Aug-2013

Nutrient management

CAMPAIGN FOR THE FARMED ENVIRONMENT

Soil management for

Crop protection for arable and livestock farms

CAMPAIGN FOR THE FARMED ENVIRONMENT



**Thank you!**



**Any questions?**