

Water quality protection for your farm business



Championing the Farmed Environment (CFE) is encouraging farmers and land managers to protect and enhance the environmental value of farmland through environmental measures alongside productive agriculture.

Water is undoubtedly one of the most valuable natural resources required for productive and sustainable farming.

Good management of water resources will protect soil health and farm wildlife, as well as ensuring nutrients, plant protection products and sediment stay out of sources of drinking water.

By following good farm practices which ensure nutrients, plant protection products and soil stay on the field and out of watercourses, farmers can save costs, improve yields and minimise the risk of water pollution from agriculture.



What is Catchment Management and what does it mean for farmers?

Catchment Management is about preventing pollution of water sources rather than relying on 'end of pipe' solutions, such as water treatment, while delivering other benefits for the economy and environment.

Farmers have a vital role to play in good catchment management as they often manage a large proportion of the land in a river catchment. Their management decisions are crucial in preventing and reducing water pollution.

Top tips for protecting water quality on the farm:



- Create grass buffer strips alongside watercourses to minimise the risk of soil and product run-off
- Use soil and nutrient management plans to identify water pollution risks and plan the efficient use of manures and fertilisers
- Store and use your plant protection products, manufactured fertilisers, manures, slurry and silage safely to avoid water pollution from farmyard and field
- Use cover crops to retain nitrogen in soils and reduce soil erosion
- Fence watercourses to keep livestock out of rivers, streams and ditches

The Catchment Based Approach (CaBa)

The Catchment Based Approach (CaBA) works in partnership with farmers and other businesses, local communities and interest groups, water companies and Government to deliver environmental improvements and safeguard water quality across 100+ river catchments in England.

Your local CaBa Catchment Partnership may be able to offer guidance and signpost local funding options for addressing water pollution from farmland. Visit catchmentbasedapproach.org/get-involved to find out more.

Keeping nutrients on your fields and out of watercourses

This will protect water quality and save you the cost of wasted fertiliser.



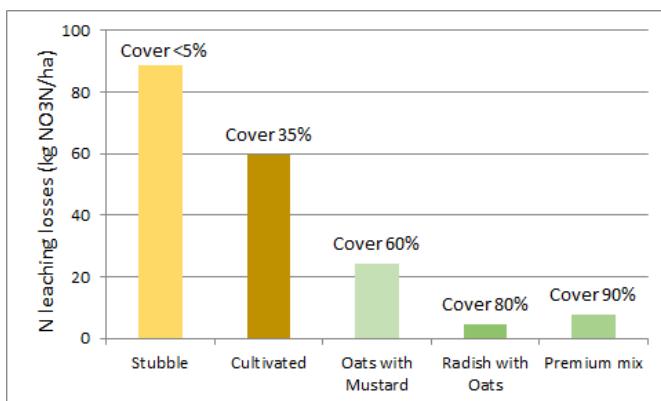
- The key to nutrient management is knowing what, where and how much to apply
- Soil testing will help you to reduce excess application and target nutrients where they are needed
- Buffer strips along watercourses will reduce run-off
- Cover crops can reduce nitrate loss as well as protecting soil from erosion

Cover crops— a scientific case study

The issue: Nitrogen is a crucial ingredient of organic and manufactured fertilisers. However, the Drinking Water Standards state that nitrate levels cannot exceed 50 mg per litre. When nitrogen is applied - for example in manure or manufactured fertiliser - and not used by plants or retained in soil, losses through leaching or run-off can contribute to the levels in drinking water exceeding the maximum limit.

A solution: Winter cover crops have been shown to be effective in reducing nitrate losses to groundwater.

Cover crops help to retain nitrogen in soil, which benefits the following crop and reduces the levels of nitrate in watercourses.



Results from 2017 trial funded by Anglian Water/ADAS in North Lincolnshire

The result: Trials which compared the benefits of stubble and cultivated/weedy growth with 3 cover crop mixes (oats and mustard, radish and oats and a premium 10 species mix) showed that nitrate loss was significantly reduced when a cover crop was used.

Top tips for reducing nutrient losses to water

- Only apply what you need; use the RB209 Fertiliser Manual or Soil Mineral Nitrogen testing to plan your fertiliser use
 - Take into account any applications of organic manures, previous field history and soil type
- Use a Nutrient Management Plan and/or Feed Plan
 - Further guidance and online tools are available from Tried & Tested at www.nutrientmanagement.org
- Choose the right crop for each field and cultivate across slopes to reduce run-off
- Use cover crops to reduce leaching and run-off over winter
- Establish buffer strips (min 6m wide) between all watercourses and areas on which you apply fertiliser

Store and use plant protection products responsibly to reduce the risk of water pollution

Plant protection products (pesticides, herbicides and fungicides) which reach water can affect both aquatic life and drinking water quality.

- Plant protection product pollution of watercourses can come from both arable and grassland farms.
- The farmyard generally accounts for about 40% of losses (more in grassland areas)
- Field losses through drain flow and run-off account for about 60% (more in arable areas)



Farmyard pollution - a practical case study

The issue: Up to 40% of plant protection products reaching ground and surface water come from product handling areas on farm.* Splashes and spills when filling sprayers and rinsing containers mean valuable product is wasted.

Even if small spillages reach watercourses, serious pollution can result. Just one dropped foil seal can contain enough product to increase residues above the legally permitted standards for drinking water for up to 30 km of stream.

*<https://voluntaryinitiative.org.uk/media/1257/best-practice-advice-for-handling.pdf>



A solution: Anglian Water works with farmers around its region to implement small best practice changes which can make a big difference in reducing the risk of water pollution.

Drip trays (manufactured from recycled plastics, see photo) reduce the risk of any drips and spills entering the yard drainage system or nearby watercourses whilst filling or washing down the sprayer.

The result: The impact of small changes in everyday practices are not always recorded, but every drop of Plant Protection Product saved from a spill can be put back into the sprayer and applied where it is needed.

The benefits of reduced water pollution can then be passed onto water users (including farmers) by water companies through reduced water bills.



Top tips for plant protection products

- Use an Integrated Pest Management (IPM) plan to reduce reliance on chemical plant protection products
- Follow good practice in the farmyard when storing, filling and cleaning to prevent point-source pollution
- Apply carefully and precisely in-field to protect water, observing the product label buffer strip requirements and using low drift technology where possible
- Visit www.voluntaryinitiative.org.uk/water/advice for further guidance

Keeping soil and sediment out of watercourses

Whether you are running an arable or a livestock farm, the soil in your fields is a vital business asset and it is important to preserve it.

- If soil gets into watercourses on your farm, the value of that soil to your business is lost and water companies must spend time and money removing it
- Drains and ditches which are silted up will work less efficiently
- Clear watercourses offer benefits for wildlife on farm, as suspended sediment can smother water plants, river gravels and aquatic invertebrates



Soil erosion and sediment loading—a collaborative case study

The issue: Soil can reach water through surface run-off from fields (tramlines and gateways present a particular risk), drain flow through the soil and livestock trampling watercourse banks.

In the River Wensum catchment, sediment loading caused problems for local ecosystems as soil was washed into the river from surrounding farmland and roadside verges.

Heavy rainfall caused influxes of soil run-off, but sediment was also reaching the river through subsurface flow, i.e. field drains.



A solution: Through working together, Norfolk Rivers Trust, WWF, Coca-Cola and the Broadland Catchment Partnership funded the construction of three large roadside sediment traps to slow the flow of water, allowing soil and sediment to settle in the traps and reducing the amount reaching the river.

The result: 7,253 kg of sediment was caught by the 3 traps in the first 12 months.

Taking into account the cost of removing the sediment (which also carried phosphorus and nitrogen) from drinking water, these traps mitigated **£533-worth of pollution damage in the first year** and will have paid for themselves in 8 years (including annual maintenance).

There may be funding options for large projects, such as sediment traps, in your area; you can find details of these through the 'other sources of information' links on the back page of this guide.

There are also actions you can take on-farm to reduce the risk of soil leaving your fields and polluting water:

Top tips to keep soil and sediment out of water

- Good soil management will reduce the risk of soil erosion, as well as maximising soil health
 - See the CFE guides - 'Soil management for your farm business' and 'Managing soils for a sustainable future'.
- Consider the routes by which soil might leave your fields:
 - Use grass buffers alongside farm tracks, gateways and all ditches, stream and rivers
 - Think about field slope and flow-direction
 - Address areas of compaction and tramlines

Working in partnership

CFE helps farmers and land managers choose the right environmental measures, put them in the right place and manage them in the right way – to protect soil, water and air quality and benefit wildlife.

CFE is a partnership approach supported by many organisations engaged in agriculture and the environment.

All recognise the importance of managing the farmed environment. By working together with CFE, a number of voluntary, industry-led initiatives demonstrate how the industry is stepping up to promote and support good environmental management on farm.

Web: www.cfeonline.org.uk

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www.voluntaryinitiative.org.uk



www.nutrientmanagement.org



Image credits

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Pg 2: Grass buffer strip - P.Thompson, GWCT.

Catchment Management Illustration - © Westcountry Rivers Trust

Pg 3: Buffered watercourse & mixed cover crops - P.Thompson, GWCT.

Pg 4: Aerial farmyard & dripping tap - © NFU

Drip catch tray - © Anglian Water

Pg 5: Gate with run-off & sediment trap - © Anglian Water



Produced in collaboration with Anglian Water

Other sources of information:

CaBa—Catchment Based Approach

catchmentbasedapproach.org

Catchment Sensitive Farming:

www.gov.uk/guidance/catchment-sensitive-farming-reduce-agricultural-water-pollution

The Rivers Trust

www.riverstrust.org/projects/pinpoint

Farming Rules for Water

www.gov.uk/defra/farmingrulesforwater

Your local water company website

Other CFE guides which include guidance on how to avoid water pollution and maximise input efficiencies:

- **Crop protection for arable and livestock farms**
- **Nutrient management for your farm business**
- **Soil management for your farm business**
- **Managing soils for a sustainable future**