Metaldehyde

Metaldehyde is the active ingredient contained within most brands of slug pellets used by UK farmers.

In 2012 Yorkshire Water detected up to 12 times the permissible level of metaldehyde in the River Derwent and its tributaries. Metaldehyde is a significant concern as water treatment is unable to remove this chemical from water abstracted from the River Derwent for drinking water.

Catchment Sensitive Farming is working with Yorkshire Water to help local farmers improve management of slug control with measures that reduce the risk of chemical pollution of our watercourses.

What's in your back yard?

Although metaldehyde presents a risk to all watercourses and care is needed wherever it is used, it is of particular concern in high risk Drinking Water Protected Areas (DrWPA) such as the River Derwent catchment. You can find out whether your holding lies with a DrWPA or associated Safeguard Zone by consulting the Environment Agency's **What's in Your Backyard** (WIYBY) system on the web.

WIYBY is an online tool developed by the Environment Agency that identifies if the land you farm or provide advice to is in a DrWPA or a Safeguard Zone. It also will help you establish if your land is at high risk of risk of causing metaldehyde exceedances.

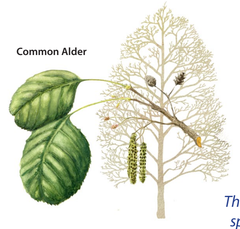
Visit www.wiyby.co.uk and enter your postcode to find out more.

Top Tips

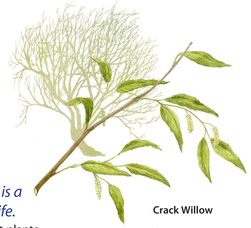
- **Talk to an agronomist about cultural methods that reduce the need for chemical control and only use pellets when the threat is present in significant numbers.**
- **Use the minimum effective active per hectare to avoid drainage and run-off losses.**
- **Maximum application rate 210g metaldehyde a.s./ha*; but for additional protection of water suppliers/BASIS advisors may recommend rates reduced to 160g a.s./ha or less*.**
- **Maximum total dose rate: 700g metaldehyde a.s./ha/ calendar year*.**
- **In high risk years additional control must be by the use of pellets containing other active agents e.g. ferric phosphate or methiocarb (note the latter is in the process of being withdrawn).**
- **No pellets to be applied within 6 metres of a watercourse.**
- **Do not apply when heavy rain is forecast.**
- **If drains are flowing do not apply metaldehyde based slug pellets.**
- **Trials have shown that use of 1.5% low dose metaldehyde pellets are as effective as higher 4-5% dose products and present a much lower risk to watercourses and potentially save money.**
- **Trials in some parts of the UK have shown that 98.7% of metaldehyde contamination within rivers and streams comes via flowing field drains. Before using metaldehyde, especially in under drained fields, it is important for the risk assessment to check: are the field drains running? Is the soil saturated? Is heavy rain forecast?**
- **Ensure the pellet spreader is clean, well maintained and calibrated for the product in use.**
- **Pellet spreader operators are now required to have both PA1 and PA4 NPTC qualifications.**
- **Use spot treatment in slug hot spots rather than expensive blanket treatment of fields where this is appropriate.**
- **Use slug traps pre-cultivation to assess whether you need to apply pellets. Use chicken layers mash (not slug pellets) and cover with tile or plastic traps.**

For further information about effective slug control and reducing the risk to drinking water and the environment visit: www.getpelletwise.co.uk or contact Catchment Sensitive Farming.

*CRD approved maximum rate


Common Alder


Sand Martin


Crack Willow

The Yorkshire Derwent is a special place for wildlife.

It is home to some of our rarest plants and animals and as such much of it has been designated as a Special Area of Conservation, Special Protection Area and Site of Special Scientific Interest. Many of the plants and animals shown here are also Biodiversity Action Plan species.


Pied Flycatcher


Kingfisher


European Otter

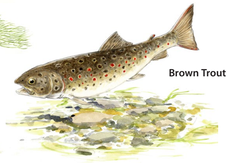

Grey Heron


Dipper


Grey Wagtail


Water Crowfoot

Atlantic Salmon


Brown Trout


White Clawed Crayfish


Mayfly and Damselfly larvae


Lamprey

Riverbank Tree Management – Light Means Life

Traditionally riverbank trees were managed by coppicing and pollarding. The timber produced provided a range of useful products including clogs, firewood, charcoal, gunpowder and fencing materials. With declining markets, coppicing has largely ceased, resulting in over-mature and uniformly aged trees which deprive rivers and banks of sunlight. However, promoted by agri-environment schemes, coppicing is slowly making a comeback, along with the wildlife encouraged by these restored habitats.

The Benefits of Coppicing and Pollarding

- Creates a mosaic of light and shade beneficial to a wide range of plants and animals.
- Rejuvenates diseased and over-mature trees to help bind riverbanks.
- Encourages bank-side grasses and shrubby growth to help stabilise banks.
- Prevents erosion and over-widening by limiting the formation of 'erosion bays' and undercut banks.
- Re-vegetated banks help narrow the river channel, increasing flow velocity to 'scour' silted riverbeds.
- Coppicing is the only known control for alder disease.

Coppicing and Pollarding – Good Practice

- Coppicing is best undertaken during winter months – October to March.
- Check for the presence of protected species before starting work – consult relevant authorities.
- Strike a balance between light and shade – aim for more light over shallows and more shade over pools.
- Avoid cutting back to old growth.
- Dispose of brash carefully – do not burn near to the river and remove ash from the site.
- Retain old and veteran trees for wildlife and landscape value.
- Do not use heavy machinery on riverbanks or in the river.
- Use vegetable-based chain oil in chainsaws.

What's in it for the farm?

- Increased capital value of holding.
- Significant improvements in water quality - reduced risk of pollution and prosecution.
- Savings in reduced fertiliser applications and losses to the river.
- Cleaner animals, reduced lameness and infection.
- Improved stock handling.
- Improved fisheries benefit the local economy.
- Promotes good relationships with neighbours.
- Tree management can produce a sustainable timber/firewood crop.
- Improved wildlife and recreational value.

Help and Advice:

There is lots of support to help manage our rivers and streams. Help to gain consents, capital grants, deal with paperwork and provide advice. Its all out there and often free.

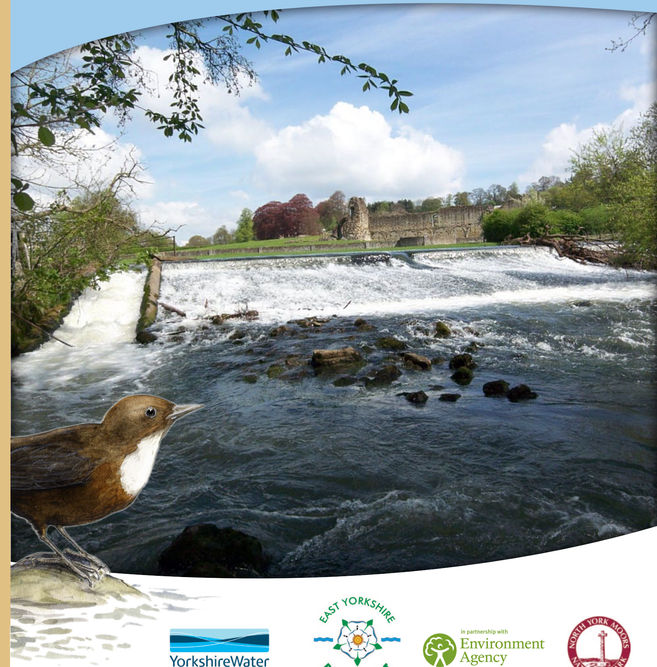
North York Moors National Park Authority 01439 772700
Catchment Sensitive Farming 01904 825806
Environment Agency 03708 506 506
Natural England 0845 600 3078
Forestry Commission 01904 448778
East Yorkshire Rivers Trust www.eastyorkshireriverstrust.org.uk
Yorkshire Water 0845 1 24 24 24

Who to Contact: Keeping it legal

- Work on, or affecting a Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC) or Special Protection Areas (SPA) will require Natural England consent.
- Any work that will affect protected species may require a licence from Natural England.
- Work that will affect a scheduled ancient monument will need advice from English Heritage.
- Consult the Environment Agency before undertaking work on or in a main river. On non-main rivers consult your Local Authority.
- An Environment Agency licence is required if spraying herbicides near to or on any watercourse.
- A felling licence may be required from the Forestry Commission if more than 5m³ of timber is coppiced in a calendar quarter.

Illustrations: **Alan Duncan** Graphic design: **www.thinkgraphic.co.uk** Printed in the UK using vegetable oil based inks on sustainably sourced stock
Adapted from the original design and text produced by the Shropshire Area of Outstanding Natural Beauty – and reproduced with due acknowledgements.

River Derwent
WATER FRIENDLY FARMING
Good Practice Guide



YorkshireWater · EAST YORKSHIRE RIVERS TRUST · In partnership with Environment Agency · NORTH YORK MOORS NATIONAL PARK

WATER FRIENDLY FARMING

Water Friendly Farming can help protect our rivers and streams, and can help make farm businesses more effective and efficient. Good land management and farm practice will improve soil protection, reduce fertiliser and pesticide use and can also improve animal health. This can result in both cost savings and environmental improvements.

Livestock and Rivers

Where stock have free access to the river, water quality can be poor.

Poached soil leads to erosion, over-wide channels and shallow watercourses. This is compounded by compaction of soil, in turn leading to greater runoff and the deposition of fine silt on the riverbed. Silt robs the riverbed of oxygen by blocking the spaces between the gravels, significantly reducing the number of invertebrates and fish eggs. Uncontrolled stock access also adds animal wastes to the rivers which causes pollution.

Fencing watercourses can help reverse this decline

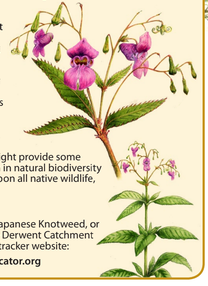
- River bank vegetation is re-established, helping to reduce erosion.
- Establishes a buffer strip between rivers and fields that intercepts soil run off.
- Reducing soil run-off helps to keep important nutrients on the land, often reducing the need for and cost of using fertiliser.
- Keeping livestock out of rivers may help reduce the spread of waterborne disease.
- Failing to address soil erosion or complete a 'Soil Protection Review' can affect single farm payments.
- Allowing polluting material to enter a river or stream is also an offence which can attract large fines.

Fencing and Stock Watering Good Practice

- Set fencing at an appropriate distance from the river (banktop height or greater).
- Align fencing parallel to flow and build in weak points at areas of risk.
- Temporary electric fencing or three lines of wire may be more appropriate than stock netting in areas of high flood risk.
- Make provision for gated access, to allow control of invasive vegetation by topping or occasional grazing by livestock.
- Access ramps should be sited on slope no more than 1:6 and should be surfaced with local stone held in place at the toe of the bank with untreated timber or similar.
- Locate water troughs away from watercourses.
- Provide hard base around the trough to minimise poaching.
- Troughs should be used in preference to drinking bays.

Invasive Species

Non-native invasive species such as Japanese Knotweed, Himalayan Balsaam and Giant Hogweed can out-compete native plant species reducing the biodiversity of the river banks.
When they die back in winter they leave bare ground that leads to erosion and increases sediment input into the rivers. Giant Hogweed can also cause nasty skin blisters.



Whilst Himalayan Balsaam might provide some nectar for bees the reduction in natural biodiversity has larger negative impact upon all native wildlife, including bees.

Your help is needed

If you spot Giant Hogweed, Japanese Knotweed, or Himalyan Balsaam within the Derwent Catchment please report it via the plant tracker website:

http://planttracker.naturelocator.org

Issues

1. Poorly maintained yard and buildings – no rainwater goods, uncovered stock gathering areas resulting in clean and dirty water mixing.
2. Silage clamp located next to ditch increases potential for leachate to drain to river.
3. Poorly maintained farm/cattle tracks and gateways encourage runoff to ditches and river.
4. Neglected, over-mature riverbank trees – heavy shade suppresses vegetation and encourages erosion.
5. Poorly sited livestock feeder – poached and prone to runoff to river.
6. Uncontrolled stock access resulting in trampled and eroded riverbanks.
7. Arable field on steep slope – no buffer between field and river, no in-field grass or shrub buffer to help intercept runoff.
8. Collapsed willow - identify willows at risk and pollard.

Solutions

1. Well maintained yard and buildings – rainwater storage and covered stock gathering areas.
2. Covered slurry store located away from watercourse.
3. Well maintained tracks – limited pathway to river.
4. Phased management of river corridor – vegetated riverbank to help intercept runoff - recently coppiced and pollarded trees retaining proportion of mature and veteran trees to create a mosaic of light and shade.
5. Livestock feeder located on hard-standing and away from river.
6. Fenced river to prevent stock access encourages vegetated buffer strip.
7. Livestock watering – either drinking bay or trough on hard-standing.
8. Fenced ditch – well vegetated banks help intercept runoff.
9. Beneficial in-stream woody debris – located to limit erosion.
10. Gateway located away from river.
11. Arable field located away from river with grass margins to intercept runoff.
12. Pollarded willows.

Ditch Management

Ditches often form a direct route between the farmyard and the river and can be a path by which fertilisers or chemicals enter a river. Ditches can act as a buffer to filter silt and pollutants before they reach the river. Frequent clearing can disturb this filter.

Good Practice

- To reduce the need for frequent dredging, fence ditches to prevent bank erosion. Bank side vegetation will help intercept run-off.
- At field corners consider creating small ponds or filter beds to encourage settlement of silt.
- Phase dredging operations over several years rather than clearing the entire length.
- Avoid spreading fertiliser and pesticides near to ditches.

Large Woody Debris

Large woody debris - the branches and root boles that collect in a watercourse are often removed because they are unsightly or thought to cause erosion and flooding.

Whilst this is sometimes true, large woody debris is in fact a valuable asset to the river and can if managed correctly help to reduce erosion and benefit wildlife.

- It can be difficult and costly to remove woody debris from the river. Instead, if it is pinned to the bank it will help to reduce erosion - stabilising riverbanks.
- Creates diverse flow conditions that can improve water quality and encourage natural flows that enable the river to self clean.
- It creates niche habitats and cover valuable to fish.
- Woody debris provides valuable resting sites for Otter, Grey Wagtail and Dipper.

Good Practice Guide

Controlling Runoff at Source

Clean and Dirty Water Separation

- Ensure guttering, downspouts and underground pipe work are in good order – consider storage of this clean water as an alternative to more expensive sources.
- Ensure that rainwater from rooftops is kept away from stock gathering areas, trackways and manure stores.
- Consider roofing stock gathering areas to minimise the production of dirty water.

Livestock and Vehicle Movement

- Minimise poaching through the provision of 'cow tracks'.
- Site feeders on hard-standing areas on higher ground away from watercourses and move regularly to avoid poaching.
- Identify erosion pinch points to reduce poaching – install cross drains in tracks, move or resurface erosion prone gateways, resurface farm tracks, install watercourse crossings.

Managing Soils

- Implement soil, crop and nutrient plans for the farm – identifying areas of erosion and runoff risk will help safeguard the most valuable resource on the farm.
- Consider regular soil nutrient testing to help reduce fertiliser costs.
- Capping and compaction encourage rapid runoff - check soils regularly.
- Avoid cultivation when soil is too moist.
- Avoid vehicle movements/wheel ruts on wet soil.
- Utilise a cropping sequence to ensure ground coverage throughout the year.
- Where erosion is severe consider alternative uses for the land.
- Consider permanent vegetation (hedges, woodland, grass buffers) on steep slopes, natural drainage-ways at risk from gully erosion, long unbroken slopes, wet soils in difficult corners and alongside watercourses.

Controlling Riverbank Erosion

Riverbank erosion is largely a natural process. However in recent times erosion has accelerated through the loss of riverbank alder (diseased and over-mature) and uncontrolled stock access.

Eliminating the cause of erosion is essential before embarking on riverbank protection works. Where erosion is sustained it may be necessary to consider revetment.

Revetment – Good Practice

- Environment Agency consent may be required before working within or near the watercourse.
- Use soft revetment e.g. willow spilling, brash, coir matting, pinned conifer tops.
- Hard revetment should be avoided.
- Revetment should follow the natural line of the river.
- Opportunity to incorporate wildlife features e.g. pipes buried into banks to encourage Water Voles.