



**Metaldehyde
product
substitution
project.**

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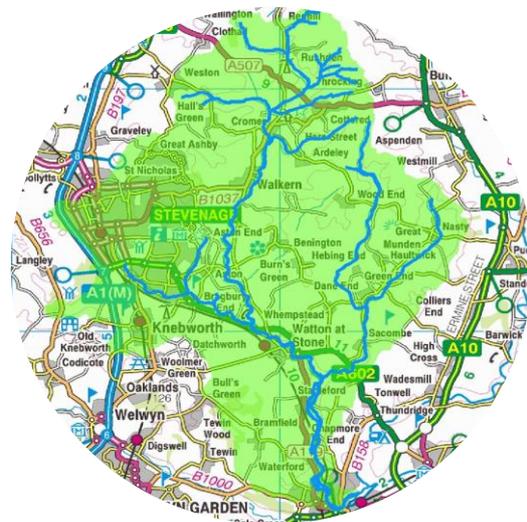
Even advanced treatment processes can't easily remove metaldehyde from water, so we're working with farmers, land managers and the wider pesticide industry on catchment management approaches to prevent metaldehyde reaching watercourses. One approach includes product substitution.

The challenge.

Metaldehyde is the active ingredient in many slug pellets, and it's commonly used in agriculture to protect crops against slug damage. The pellets are usually applied in autumn when the soil is wet and rainfall is highly likely.

When it rains, metaldehyde can be washed off the land and enter rivers at concentrations exceeding the Drinking Water Standard (DWS) of 0.1 µg/l. Unfortunately, metaldehyde can't be easily removed, even with advanced water treatment processes, so other approaches are needed to maintain compliance with drinking water standards.

The River Beane is a tributary of the River Lee, and provides drinking water to north London. Metaldehyde concentrations in these rivers can exceed the DWS during the high risk season (September to December). As a result, we started a slug pellet product substitution project in the Beane catchment in autumn 2016.



The River Beane flows from north to south, with tributaries joining from the east and west.

Product substitution approach.

The product substitution approach aims to encourage farmers to use slug pellets that contain ferric phosphate instead of metaldehyde. Arable farmers are offered a subsidy of £1/kg for ferric phosphate slug pellets to be applied on autumn-sown crops.

Ferric phosphate pellets have been found to be just as effective at protecting crops as metaldehyde, but don't affect water quality.

When ferric phosphate is used, slugs stop feeding almost immediately after ingesting the pellets and retreat underground to die. Unlike metaldehyde, there are no visible slime trails or dead slugs, so the treatment's effectiveness may be questioned by farmers. Regular field walks and inspecting the crop are the best ways to judge how well the product is working.

- We're offering arable farmers a subsidy of £1/kg to use ferric phosphate slug pellets instead of metaldehyde.
- Metaldehyde can't be easily removed during the water treatment process.
- In some rivers, metaldehyde concentrations frequently exceed the Drinking Water Standard of 0.1 µg/l

Beane catchment project.

The aim of the project was to prevent concentrations of metaldehyde frequently exceeding the DWS in the River Beane, and to show farmers that ferric phosphate works just as well as metaldehyde despite the lack of dead slugs on the surface of the soil.

We identified 26 arable farmers in the Beane catchment as users of metaldehyde. By offering them a subsidy of £1/kg for ferric phosphate slug pellets, 25 farmers agreed to work with us.

In the past, metaldehyde concentrations in the River Beane had frequently exceeded the DWS, as shown in the graph below.

In November 2012, the levels of metaldehyde reached almost 25 times the DWS (around 2.5µg/l). This was due to more slug pellets being needed to control a boom in the slug population, combined with extremely wet weather. The DWS had been exceeded every autumn since 2012.

In the first year of the project, metaldehyde concentrations remained below the DWS of 0.1µg/l at the Beane sampling point during the entire high risk autumn / winter period, with the highest concentration recorded at 0.04µg/l.

During autumn 2017, the second year of the project, one sample only just exceeded the DWS in mid-September, after very heavy rainfall. Concentrations then stayed below the DWS for the rest of the season.

“I’ve been involved with this project for two years, and product substitution has been problem-free in terms of application, slug control and ease of claiming back the product subsidy.

It’s also good to get monthly feedback of metaldehyde levels in the catchment area during the autumn.”

- Mr. Livings, local farmer.

Our next steps.

The Beane catchment product substitution project has shown that a group of farmers working together with a common aim can help improve local river water quality. But there was one point in the two years when metaldehyde exceeded the DWS, despite almost every farmer taking part.

For this type of catchment management approach to succeed, all farmers need to be engaged. This may be challenging in the future as we continue to scale up water quality improvement projects to larger catchment areas.

