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Pet Parasiticides in Water

Potential solutions to this hidden 'One Health' chemical threat

Leon Barron

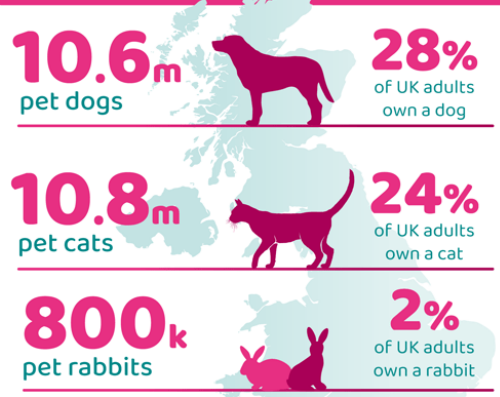
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Pets and Flea Treatments in the UK PDSA PAW Report 2024



UK pet populations in 2024



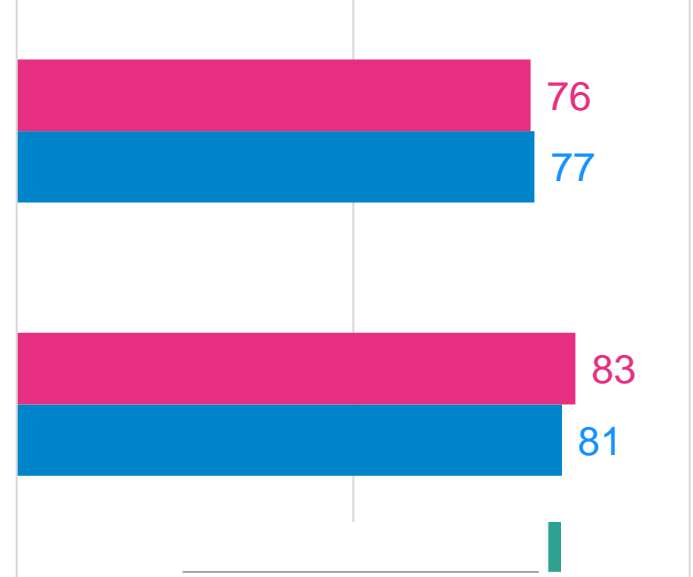
51% of UK adults own a pet

"Spot-ons"
Chewables and Tablets
Collars

Preventive Treatment

Treated for Fleas

% Treated for Ticks and Fleas



Incidence of Ticks/Fleas at Consultation

■ Cats ■ Dogs



Editorial

When cure might be better than prevention

DELIVERING this year's Woodbridge Memorial Lecture during BVetRec's annual congress at London Vet Show, Claire Godwin, professor of biocology at the University of Guelph, questioned whether the prophylactic use of flea and tick products on dogs and cats was accessible. He also asked whether the veterinary industry was confident as it might be motivated by profit in selling more parasiticide than needed (see p 43).

Whether that latter question is fair is debatable, but Godwin's comments give reasons to pause and consider whether the current approach – specifically, the widespread use of spot-on products – is sustainable.

There is no doubt that treating and reducing the burden of ectoparasite disease improves the health of pets. However, there is accumulating evidence that the widespread use of these products as preventive treatment is having unintended consequences on the environment. Studies are increasingly showing that the active ingredients in some parasiticides, especially spot-on treatments, are contaminating the ecosystem, affecting not only non-target insect species but potentially harming a broader range of animal species – including people.

One of the most pressing questions is how to balance the risks and benefits of preventive treatment. For example, while the risk of a cat contracting leishmaniasis from a flea bite might be relatively low, the ability to use single products to also prevent more common conditions, such as parasites' worm infections, makes these treatments appealing. But there are those who argue that treating pets only when they are actually infected is perfectly reasonable, and that waiting until an indication occurs does not necessarily compromise an animal's overall health in the way that some might fear.

So, what might the alternative be? Although not a complete solution, it's possible that products with different active ingredients might have less impact on the environment (whether that is true isn't yet clear). Using injectable or collar formulations might be easier to manage environmental contamination – evidence suggests that as the ingredients are degraded if larvae are ingested (although this does require owners to pick up after their pets). But, unless there is something in an animal's history or specific circumstances that suggests

otherwise, it seems sensible to limit the use of these products to treatment only.

Many veterinary professionals are now calling for a risk-based approach to ensure that animals are treated from disease while keeping overall environmental impact to a minimum. It is hard to argue with many practices including prevent annual health plans and, more concerning, power active ingredients without prescription or veterinary customer in supermarkets and pet stores.

But it is possible to call for parasiticide products that do not just prophylactically prevent veterinary practices or plans that do not just prophylactically prevent an approach requires a nuanced look at an individual patient, so can't be implemented, but can bring the benefits.

There is also more that can be done to reduce environmental damage when by the Veterinary Medicines Division (VMD) animal products have to be registered for pets.

The environment matters to pet owners, so it's important for professionals to take the lead on this. No-one wants products that animal disease to become unnecessary for pet health and welfare, but a more targeted approach is needed.

The UK veterinary profession is leading the way in addressing this (pp 43–45). Perhaps now is a good time to consider a more targeted approach to parasiticide.

Suzanne Jurie

VetRecord

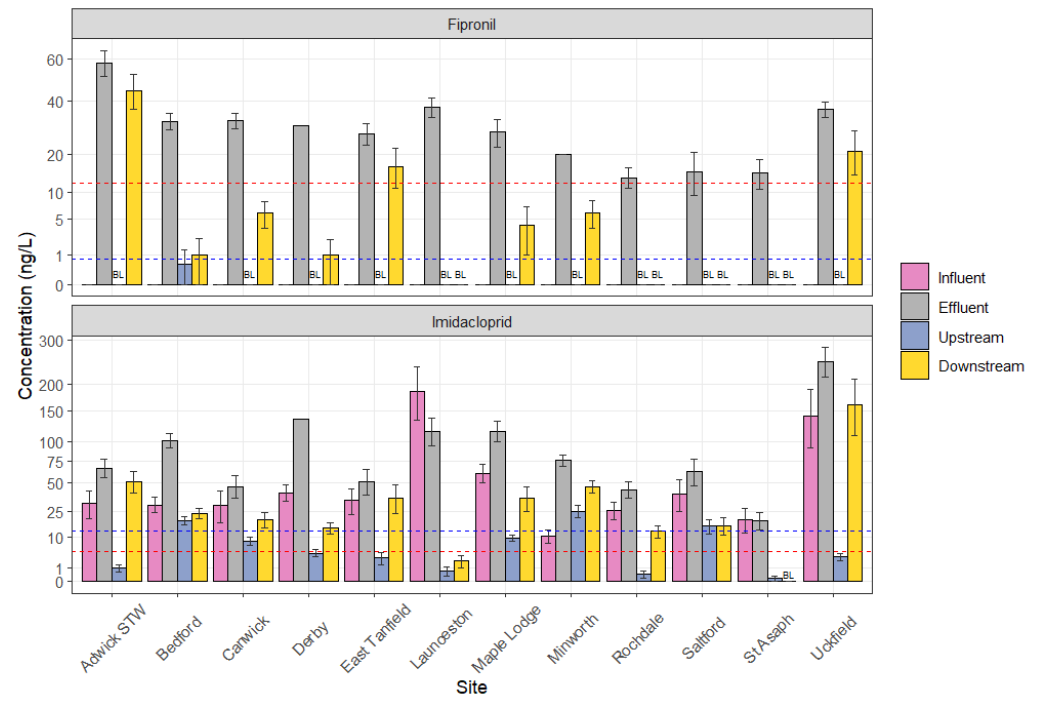
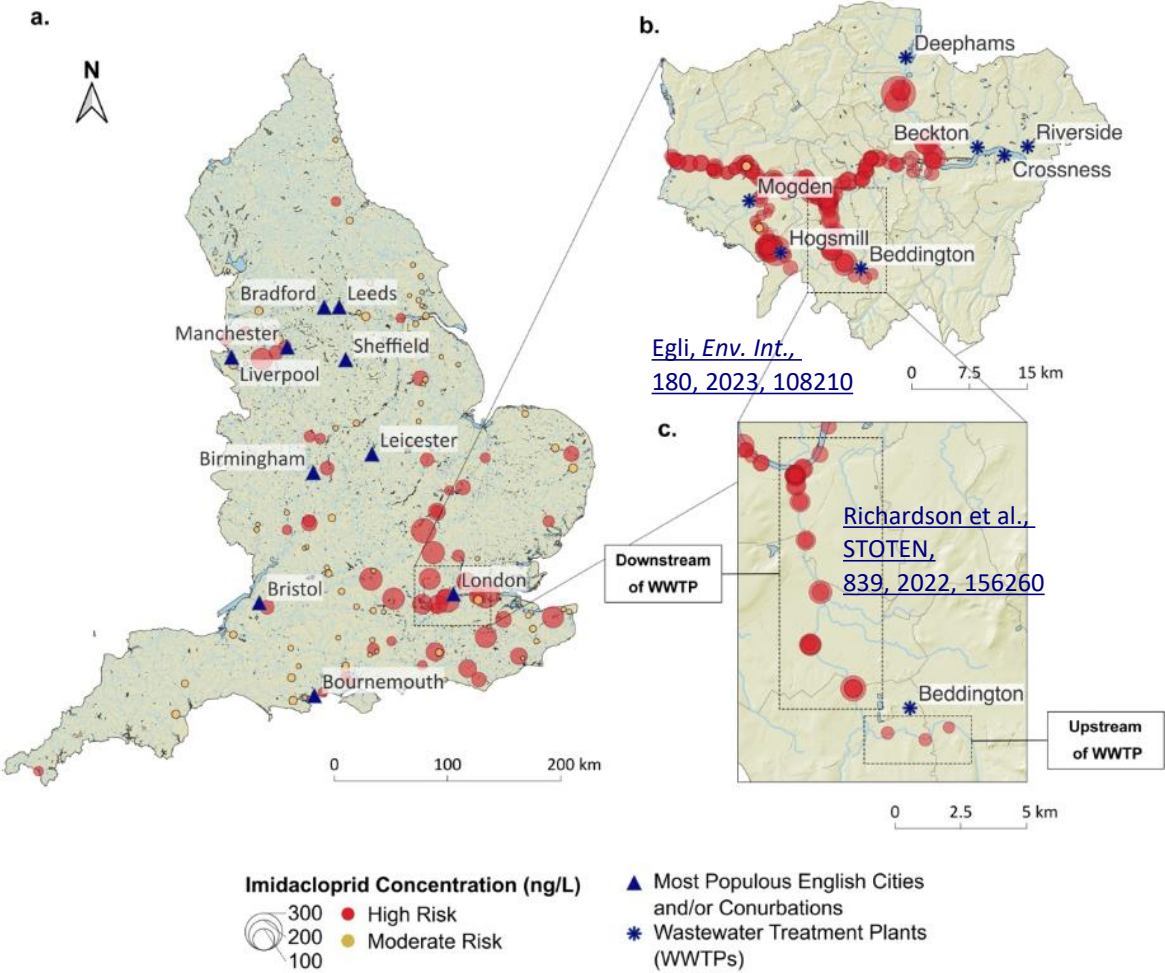
Journal of the British Veterinary Association



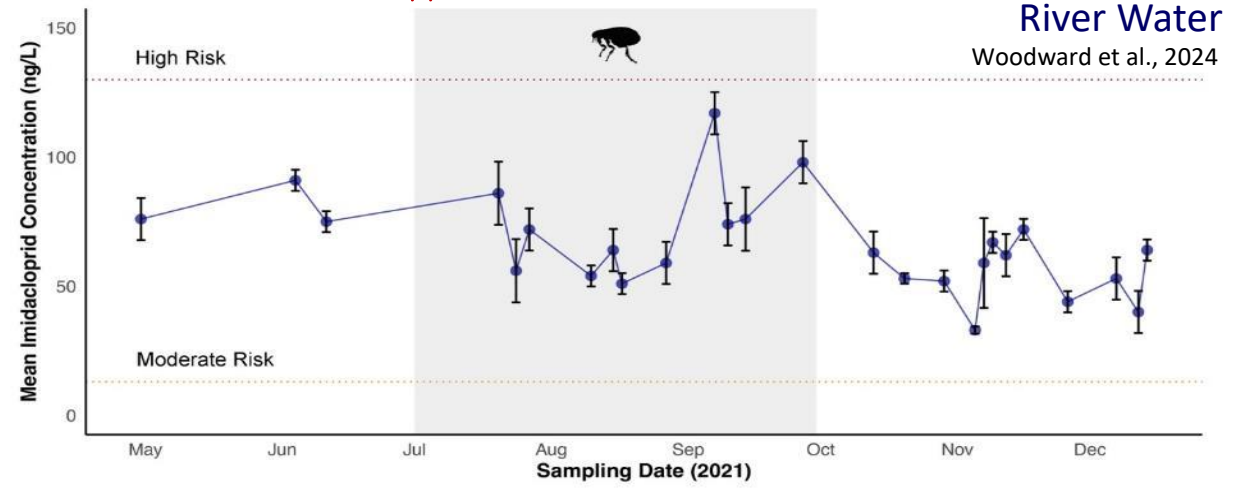
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Source: <https://www.pdsa.org.uk/what-we-do/pdsa-animal-wellbeing-report/paw-report-2024>

Sources Wastewater



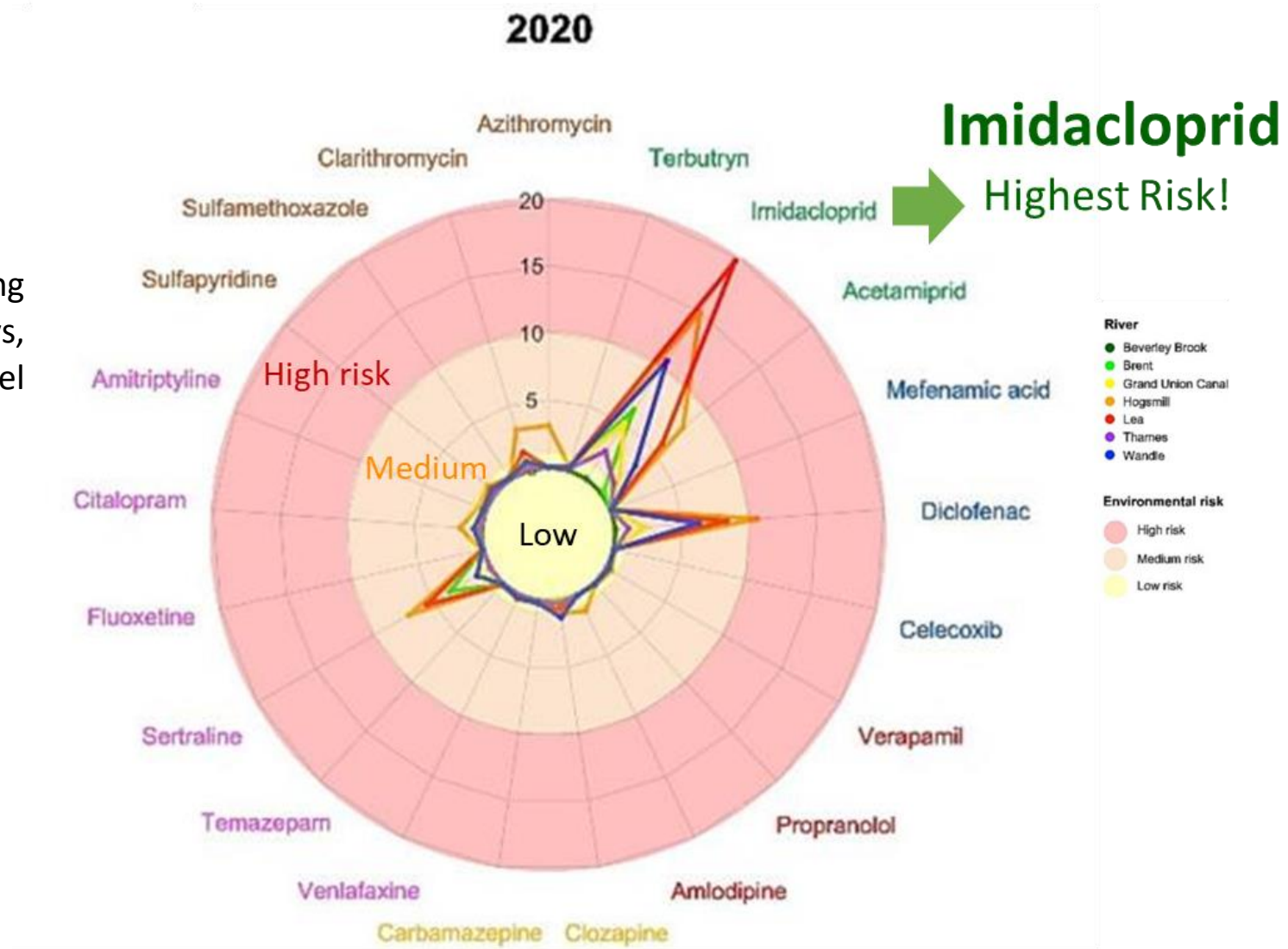
Treatment ineffective!



Source: <https://www.data.gov.uk/dataset/0c63b33e-0e34-45bb-a779-16a8c3a4b3f7/water-quality-monitoring-data-gc-ms-and-lc-ms-semi-quantitative-screen>

Risk Assessment

Of nearly 100 chemicals of emerging concern found in London's waterways, 21 were considered to pose some level of risk to aquatic life



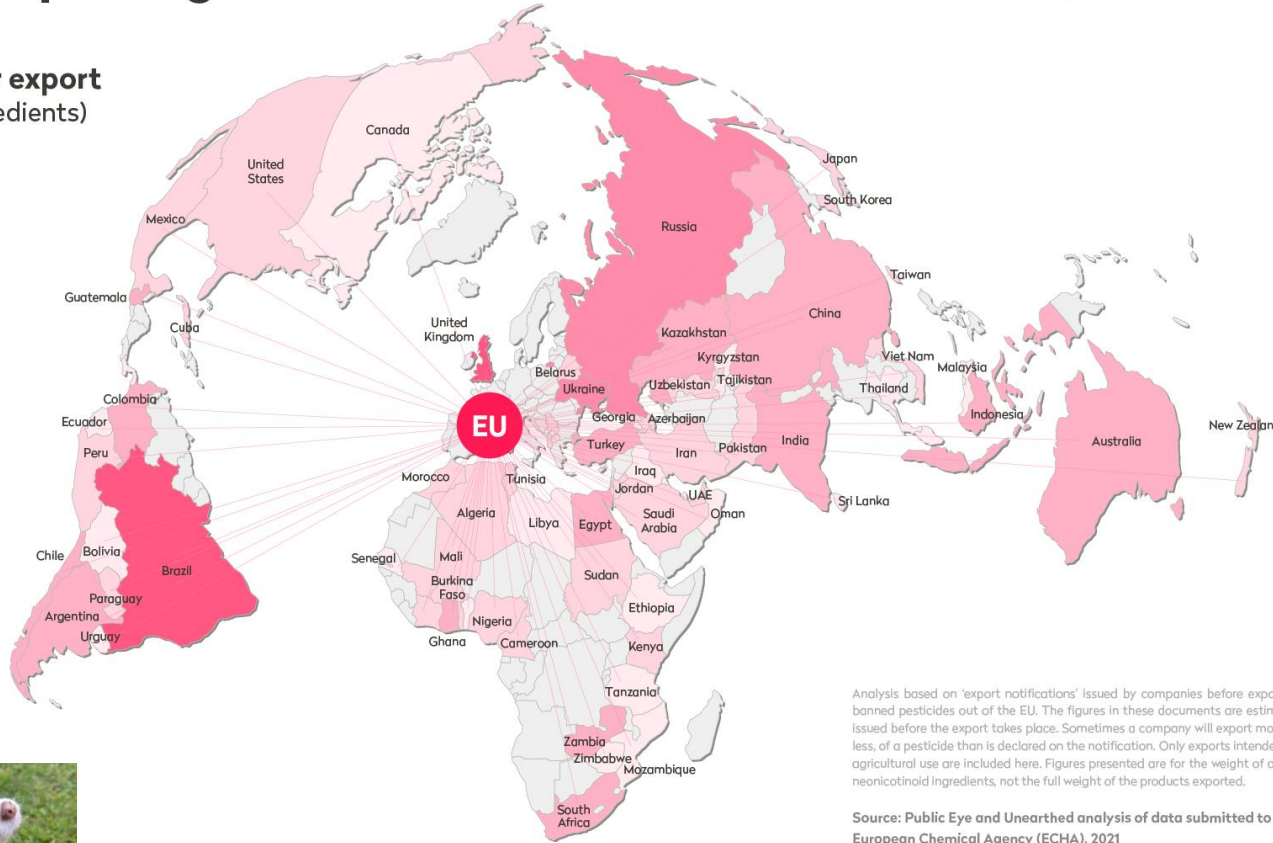
Egli et al., *Environment International*, 180, 2023

Why is this happening?

Market Repositioning and Policy Gaps

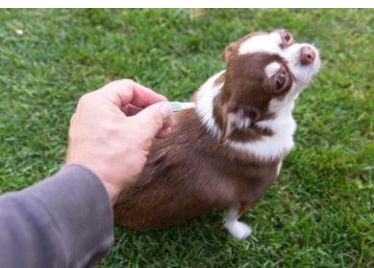
Countries importing banned neonicotinoids from the EU, 2021

Weight notified for export
(tonnes of active ingredients)



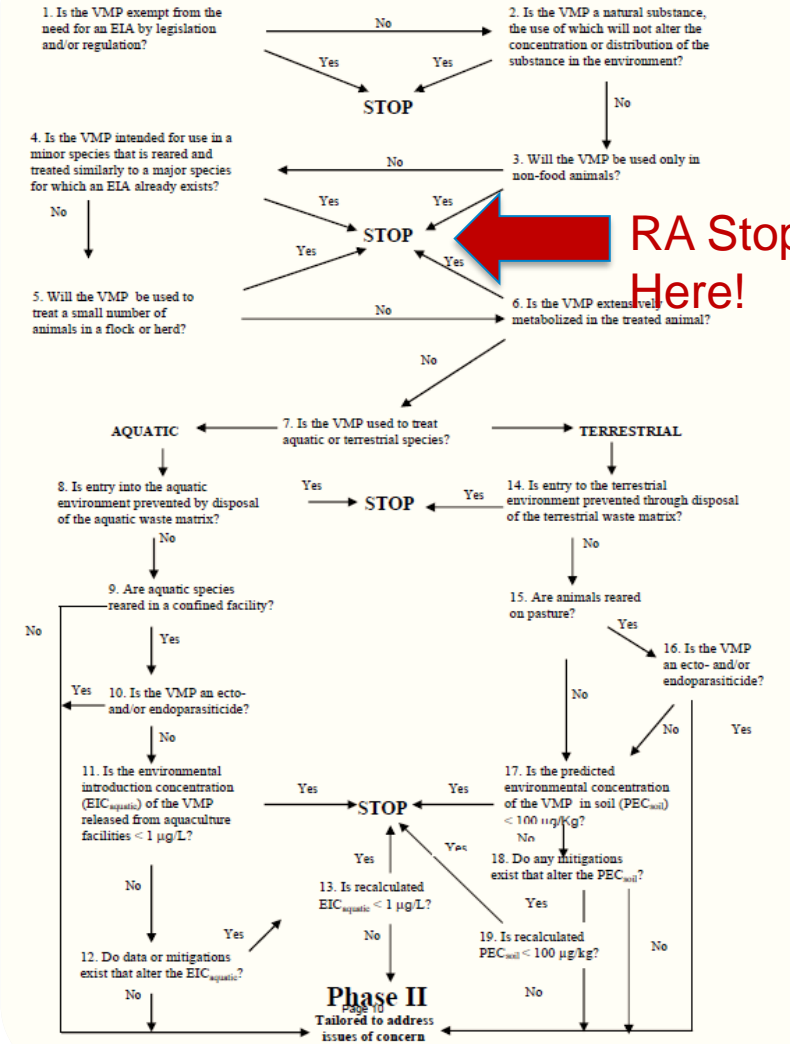
Analysis based on 'export notifications' issued by companies before exporting banned pesticides out of the EU. The figures in these documents are estimates issued before the export takes place. Sometimes a company will export more, or less, of a pesticide than is declared on the notification. Only exports intended for agricultural use are included here. Figures presented are for the weight of active neonicotinoid ingredients, not the full weight of the products exported.

Source: Public Eye and Unearthed analysis of data submitted to the European Chemical Agency (ECHA), 2021



Dowler, C. & Gaberell, L. EU Sending Huge Quantities of Banned, Bee-Killing Pesticides to Poorer Countries, Documents Reveal, <https://www.publiceye.ch/en/topics/pesticides/eu-sending-huge-quantities-of-banned-beekilling-pesticides-to-poorer-countries-documentsreveal>

Figure 1. Phase I Decision Tree



Empowering Communities

Dog Owner Questionnaire
n=101

40 %

Used spot-on, collar,
or spray-on products

86 %

Unaware of
environmental risks

94 %

Would choose safer
alternatives



[Yoder et al., STOTEN, 955, 2024, 176686](#)



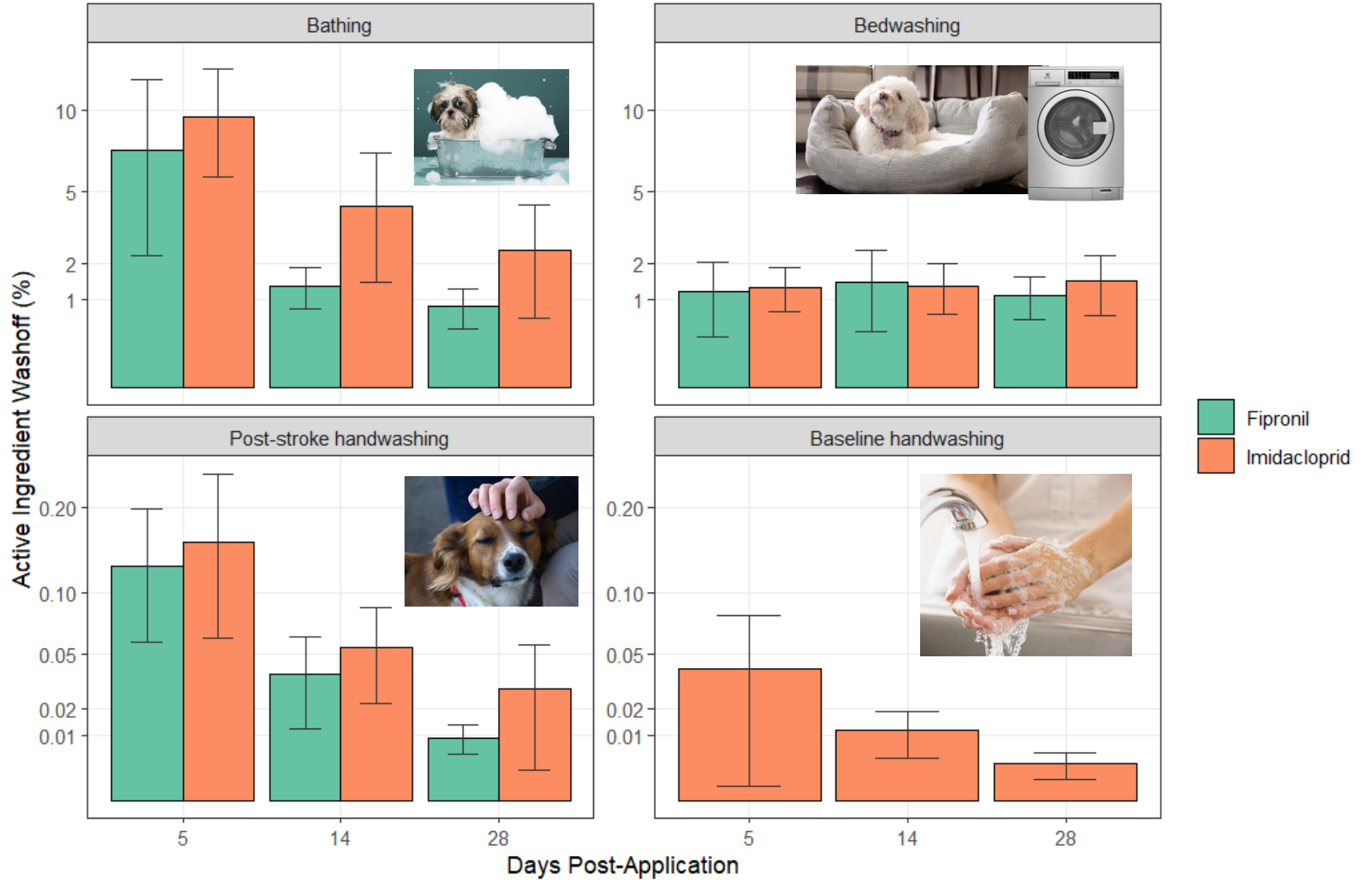
<https://www.freshwaterwatch.org/pages/great-uk-waterblitz-results>

Large-Scale Chemicals Monitoring
led by the General Public
Sept 2024



In the Home

98 dogs with spot-on treatment over 28 days



Perkins et al., *STOTEN*, 917, 2024, 170175

Solutions

1. Regulatory system review
2. Engage vets and local communities to raise awareness
3. Match use to the real treatment needs
4. Phase out continuously failing treatments
5. Safe disposal scheme
6. New wastewater treatment technologies needed
7. Reduce sewage overflows
8. Catchment-scale management strategies

Are urban areas hotspots for pollution from pet parasiticides? [PDF]

Imperial College
London

Grantham Institute
Briefing note No 15
March 2023

Are urban areas hotspots for pollution from pet parasiticides?

RHYS G. G. PRESTON-ALLEN, DR DANIA ALBINI, DR LEON BARRON, DR TILLY COLLINS, PROFESSOR ALEX DUMBRELL, HAMISH DUNCALF-YOUNGSON, DR MICHELLE JACKSON, PROFESSOR ANDREW JOHNSON, DR ROSEMARY PERKINS, DR ANDREW PRENTIS, DR DAVID SPURGEON, NICOLE STASIK, CLODAGH WELLS, PROFESSOR GUY WOODWARD

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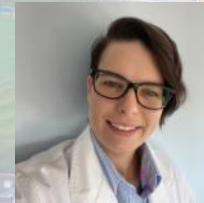
Engineering and
Physical Sciences
Research Council

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Thank you for listening!
Any questions?

PREPP - Producing Rational Evidence for
Parasiticide Prescription

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Get involved!

HELP SHAPE THE FUTURE OF PET WELLBEING - TAKE OUR SURVEY!



We want to understand more about how pet medicines are used. If you are a pet owner your experience is invaluable to us by potentially shaping future policies and research in pet care!

